Sasser demonstrates the need for speedy patching. PAGE 12 Scorecard helps Delta Technology weigh IT risks. PAGE 34

COMPUTERWORLD

THE VOICE OF IT MANAGEMENT • WWW.COMPUTERWORLD.COM

MAY 10, 2004 • VOL. 38 • NO. 19 • $5/COPY

DANIEL BAXTER

HEALTH CARE'S Major Illness

Diagnosis: a broken supply chain. Hospitals wasted more than $11 billion as a result of supply chain inefficiencies last year. We profile two hospitals using IT to stop the bleeding. Page 31

NEWSPAPER

Security Threats Raise Concerns About Bluetooth

Some IT managers take steps to limit wireless use; vendors claim risks aren't widespread

BY BOB BREWIN

Potential security risks posed by the Bluetooth wireless technology are prompting some IT managers to rein in use of Bluetooth-equipped mobile phones and PCs on their networks.

Bluetooth vendors are scheduled to hold a press briefing today at which they will discuss the security issues and provide guidance on how users can guard their devices against hackers. But several IT managers last week said they now see a need to protect their networks from Bluetooth attacks by taking the same steps they took to secure their corporate wireless LANs.

INSIDE
For additional wireless technology coverage, see PAGE 10

For example, Michael Ciarochi, a network security manager at HomeBanc Corp. in Atlanta, said he discovered last week that Bluetooth radios were included in laptop PCs that were being configured by an IT engineer for delivery to the mortgage lender's mobile workers. The radios, which operate in the same 2.4-GHz band as 802.11b WLANs, were turned on as a factory default setting.

Ciarochi said he was concerned about the possibility of opening a wireless back door into data stored on the PCs and had the Bluetooth radios turned off before the systems went into use. He added that he expects to have to secure Bluetooth by "locking it down" on devices, the same approach he took with HomeBanc's WLANs.

Emmett Hawkins, chief technology officer at Leapfrog Services Inc., said he's so concerned about Bluetooth security risks that he plans to use a

Bluetooth, page 45

Wall Street Pressed on Disaster Plans

Regulators require firms to set strategies for systems resiliency

BY LUCAS MEARIAN

Brokerages and other financial services firms are facing increased pressure from the federal government and regulators within the industry itself to clearly define and test their IT disaster recovery plans.

Wall Street firms are also being being pushed to consider moving their backup data

Wall Street, page 15

DAN VERTON

E-voting system vendors told federal officials the threat of tampering is overblown.

50M Electronic Votes Could Be Insecure, Say Researchers

Experts, vendors spar at commission hearing

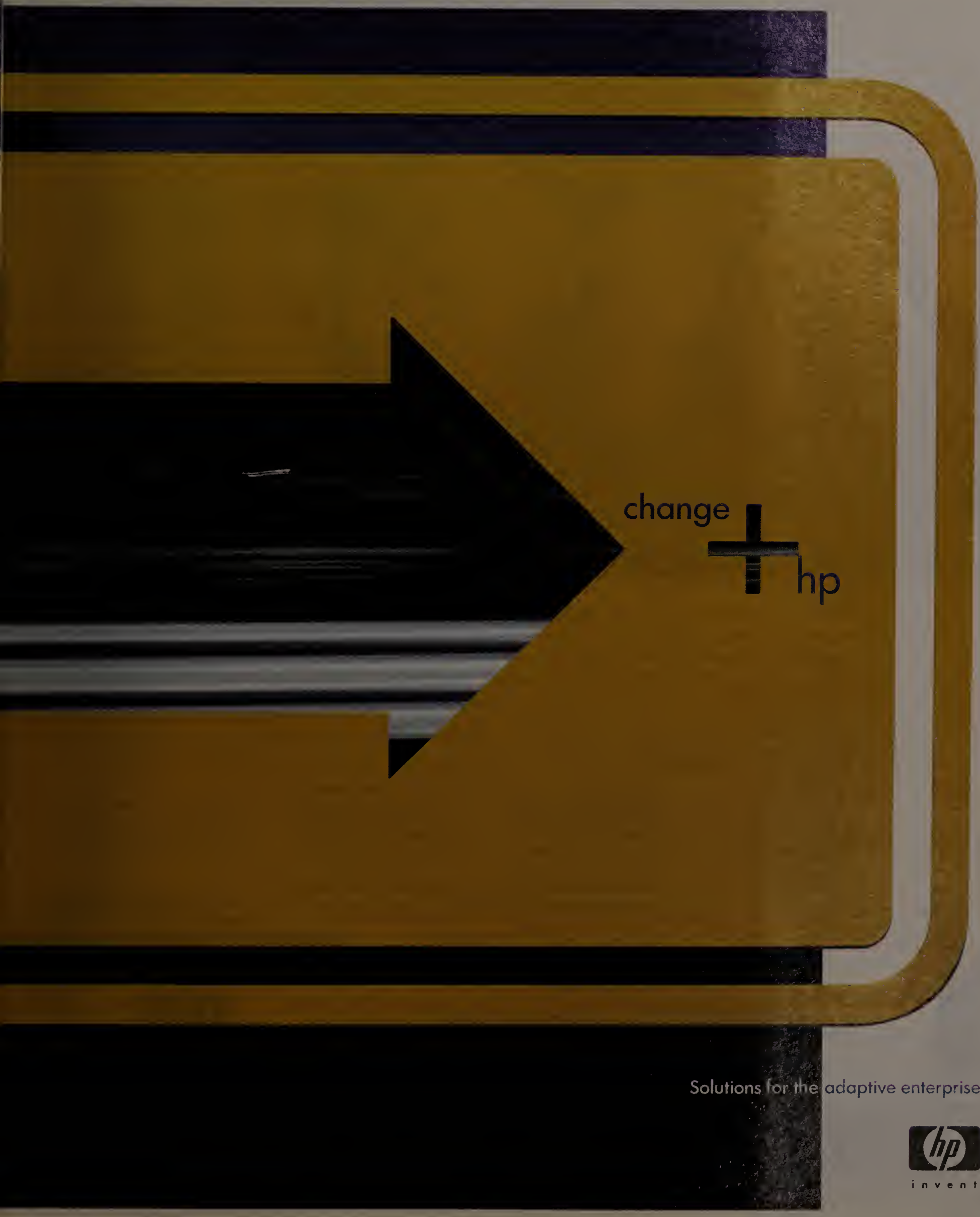
BY DAN VERTON
WASHINGTON

IT security researchers said they have uncovered significant vulnerabilities in the electronic voting systems that nearly 30% of all registered voters will use in this November's presidential election.

In testimony before the U.S. Election Assistance Commission last week, security researchers said that without

E-voting, page 45

t Company L.P. Intel and Itanium are trademarks or registered trademarks of the Intel Corporation or its subsidiaries in the United States and other countries



Solutions for the adaptive enterprise.

invent

HP Integrity servers are taking off, as are the companies using them.

Companies adopting HP Integrity servers, powered by industry-leading Intel® Itanium® 2 processors, are seeing remarkable gains in performance. The momentum is building. One after another, companies are choosing HP Integrity servers. Leading software and technology partners such as BEA, Microsoft®, Oracle, SAP and Siebel Systems have embraced the platform as an industry standard. And with the ability to manage a mixed environment of UNIX, Microsoft® Windows®, Linux and OpenVMS, HP Integrity servers are fast becoming the ultimate consolidation tool. Demand maximum performance, reliability and cost-efficiency now, on a platform that will carry you forward into the future. Demand performance that's real-world proven, and get it—with HP Integrity server solutions.

Choosing HP Integrity servers, choosing results.

AIRBUS UK:
Running HP-UX11i on HP Integrity servers, 20–30 wing design simulations that used to take weeks are now done overnight.

COMPUSA:
Going with 64-bit architecture using HP Integrity servers, they cut access time to inventory data by up to 85%.

FIAT AUTO:
Standardizing on 64-bit infrastructure using HP Integrity servers, they're integrating and enhancing sales and service as well as streamlining the buying process while lowering sales cost.

THE KOEHLER GROUP:
Moving to an environment composed of HP Integrity servers, they gained a 50% improvement in mission-critical performance.

intel inside ITANIUM 2

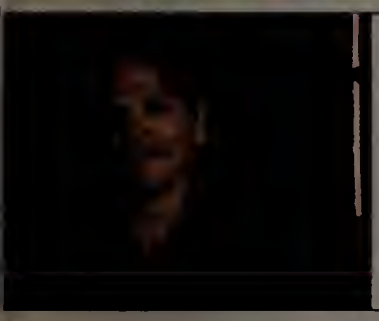
hp invent

To get the IDC white paper outlining the performance of HP Integrity servers with Intel Itanium 2 processors, go to hp.com/go/demandIntegrity5 or call 1-800-282-6672, option 5, mention code AQHF.

Intel, Intel Inside, the Intel Inside Logo and Itanium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation. ©2004 Hewlett-Packard Development Company, L.P.

CONTENTS

05.10.04



Conquering Portal Chaos

In the Technology section: Large organizations like Steve Ellis' Wells Fargo use consolidation technologies to control portal sprawl — and the legal risks and expense caused by the proliferation. **Page 24**

Extended Enforcement

Also in the Technology section: It isn't good enough to install security tools such as firewalls and antivirus software on end users' systems. Companies are finding that enforcement of security policies at network endpoints is also becoming increasingly crucial. **Page 21**

NEWS

6 **Computer Associates plans** to focus on product integration and reassuring customers about its corporate health at the CA World user conference.

7 **Outsourcing of printing** services is starting to appeal to companies as another way to cut costs.

7 **Hewlett-Packard and Sun** launch radio frequency identification test centers.

10 **Cisco adds WLAN** management support to its Catalyst 6500 switches.

10 **Offshore outsourcers** could be affected by a privacy bill proposed by Sen. Hillary Rodham Clinton.

12 **The Sasser worm's** limited impact on corporate computing demonstrates the need for quick patch response, say experts.

12 **Microsoft outlines** its latest plans for Longhorn and 64-bit Windows and a proposal to help users connect devices via Web services.

14 **Thomas Siebel** gives up the CEO job and full management responsibility at his namesake company to IBM's sales chief.

14 **SAP counts on** its NetWeaver middleware to get its installed base to buy new products.

15 **Red Hat develops** a desktop version of its Linux operating system for mainstream corporate users.

TECHNOLOGY

26 **Future Watch: Computational Origami.** This new field promises to solve complex engineering problems, as well as to help find cures for diseases such as Alzheimer's and mad cow, say researchers.

28 **Security Manager's Journal: Security Policy a Paper Tiger.** Despite explicit policies at Mathias Thurman's company, problems with rogue access points and incident-response procedures haven't improved.

MANAGEMENT

31 **Health Care's Major Illness.** Relatively few hospitals have seriously tackled supply chain issues. Here's a look at the strategies two pioneering hospitals developed to free themselves from crippling supply chain costs and inefficiencies.

34 **Managing IT Risk at Delta.** A rigorous but simple scorecard helps Delta Technology balance the risk of technology failure against the costs of upgrading.

35 **Q&A: Tall Tales.** Stephen Denning, former head of knowledge management at the World Bank, says storytelling can move organizations to action when other methods fail.

36 **Career Watch.** Partners HealthCare Deputy CIO Mary Finlay talks about the Regional Leadership Forum and soft skills. Plus, tips for conflict management.

OPINIONS

8 **On the Mark: Mark Hall** finds a product to control data quality costs, as well as a vendor that says dedicated networking appliances are better than multifunction ones.

16 **Maryfran Johnson** hears echoes of past IT crises in the rush to comply with regulatory mandates but hopes this challenge is handled better.

16 **Pimm Fox** cautions that if you're not hobnobbing with elected officials who can cut red tape to help your IT business, you're missing out.

17 **Dan Gillmor** is a road warrior who's prepared for almost any contingency. Here is what's currently in his gadget bag.

30 **Nicholas Petreley** says the latest version of the GNOME graphical desktop environment fulfills low expectations.

37 **Bart Perkins** looks at how to manage risk/reward contracts to maximize the rewards and minimize the risks.

46 **Frankly Speaking: Frank Hayes** doesn't think the Sasser worm and its ilk are trivial. They're signs that worm writers are prototyping toward something truly destructive.

DEPARTMENTS/RESOURCES

At Deadline Briefs 6
News Briefs 8
Letters 17
IT Careers 39
Company Index 44
How to Contact CW 44
Shark Tank 46

ONLINE

WWW.COMPUTERWORLD.COM

What Can You Afford to Lose?

DISASTER RECOVERY: Companies should know how fast they can get their businesses running again and how much data they can afford to lose. LiveVault CEO Bob Cramer offers key metrics you can use. **QuickLink 45971**

Prevent Insider Theft

SECURITY: Heading off the unauthorized transfer of a company's key digital assets requires both management and technology controls, writes Danny Lieberman of Open Solutions in Israel. **QuickLink 46542**

Corporate Governance: A Security Key

IT MANAGEMENT: Security is often seen solely as a set of technical issues, but it requires attention from boards of directors, write FTC Commissioner Orson Swindle and Corporate Governance Task Force Co-chairman Bill Conner. **QuickLink 46642**

What Protocols Work Best for VoIP?

NETWORKING: Consultant Matt Costanza outlines the benefits and drawbacks of frame relay, ATM and Ethernet for managing converged voice and data networks. **QuickLink 46692**

Enterprise Architecture Challenge: Integration

DEVELOPMENT: If humans can build wondrous engineering marvels, surely we can integrate the enterprise, says columnist Melissa A. Cook. **QuickLink 46716**

What's a QuickLink?

Throughout each issue of *Computerworld*, you'll see five-digit QuickLink codes pointing to related content on our Web site. Also, at the end of each story, a QuickLink to that story online facilitates sharing it with colleagues. Just enter any of those codes into the QuickLink box, which is at the top of every page on our site.

ONLINE DEPARTMENTS

Breaking News
QuickLink a1510

Newsletter Subscriptions
QuickLink a1430

Knowledge Centers
QuickLink a2570

The Online Store
QuickLink a2420

AT DEADLINE

Schmidt Won't Run For Congress Seat

Howard Schmidt, chief security officer at eBay Inc., announced Friday that he won't seek the 8th District congressional seat being vacated in his home state of Washington. The former White House cybersecurity adviser and onetime chief security officer at Microsoft Corp. said he plans to work more closely with the U.S. Department of Homeland Security instead of running for office.

Novell Starts Tests Of Its Mono Tools

Novell Inc. made its Mono open-source application development software available for beta testing and said it expects to ship Version 1.0 by the end of next month. Mono is designed to be an alternative to Microsoft's .Net technology. It includes a runtime environment for .Net applications, an integrated development environment and a compiler for Microsoft's C# language.

Intel Plans Shift to Dual-Core Chips

Intel Corp. said that it plans by the end of next year to shift all of its processor designs to dual-core chips, affecting everything from notebook PCs to multiprocessor servers. As part of the move to put two-processor cores on a single chip across the board, the company has dropped single-core CPUs code-named Tejas and Jayhawk from its product road map.

Short Takes

MICROSOFT promoted Ron Markezich, previously general manager of finance and administration IT, to CIO. He reports to former CIO Rick Devenuti, who now is corporate vice president of worldwide services. . . . ASCENTIAL SOFTWARE CORP. in Westboro, Mass., this week plans to announce a Version 7.5 upgrade of its data integration tools, with shipments due next month.

CA World to Focus on User Concerns, Product Integration

Customers seeking reassurance after company shakeup

BY MATT HAMBLEN

As COMPUTER Associates International Inc. heads into its annual CA World user conference in two weeks, it faces serious user concerns about the soundness of the company and its leadership.

After witnessing the company's acknowledgement of accounting improprieties and the ouster of Sanjay Kumar from his position as CEO, users said CA officials must now reassure them that the company will be able to maintain its newfound focus on customer support.

"I want to know if CA will continue to have the same customer-oriented policy," said Mike Stevenson, enterprise administrator for Peel Regional Police in Brampton, Ontario. Recent leadership changes and financial disclosures are "more important than any technology CA announces, because they mean the organization won't be as focused [on customers] as before."

Mark Barrenechea, CA's senior vice president of product development, acknowledged last week that CA World attendees will want to be reassured about the Islandia, N.Y.-based company's financial health. "Certainly, I think the top issue will be the state of the company, [which is] top of mind for everyone and a fair question," he said.

Tough Issues

Interim CEO Kenneth Cron will deliver the opening keynote at the conference in place of Kumar. Cron "brings a lot of maturity . . . a lot of stability . . . understands the macro aspects of the marketplace and is providing fantastic interim leadership for us," Barrenechea said. "[He will] be speaking very directly about the company" at CA World.

CA World 2004

Key themes will include:

- **Reassurances of the soundness of the company and its leadership.**
- **A new initiative for the horizontal integration of four major product groups.**
- **An expanded commitment to open-source programs.**
- **An on-demand approach and Sonar automation technology.**

And Cron will have some tough issues to speak about. CA announced last week that it had to delay its financial report on its just-ended fourth quarter and revise its revenue calculations for its second and third quarters [QuickLink 46714]. That development followed on the heels of former U.S. Secretary of State Madeleine Albright's decision to cancel her appearance as a guest speaker, for which she cited personal reasons [QuickLink 46682].

Discussing other plans for CA World, Barrenechea said the company will announce an initiative to significantly expand the horizontal integration of management functions across its four main product lines: eTrust security, BrightStor storage, Unicenter operations management and AllFusion application life-cycle management.

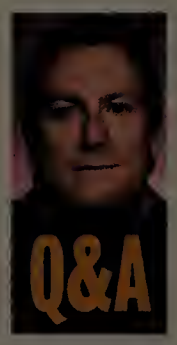
Kenneth McCardle, assistant vice president of information systems at Farm Bureau Casualty Insurance Co. in Ridgeland, Miss., said the integration work is sorely needed. "Sometimes CA products don't integrate well together," including products within the Unicenter line, he said.

Chris Poole, president of the Florida CA Users Group and a senior analyst at Convergys Corp. in Jacksonville, also welcomed the integration initiative. "I need [management software] to look at the application layer and not the hardware," he said.

CA World will be held in Las Vegas on May 23-27. **46761**

CA's Barrenechea Explains Offshore Strategy

Mark Barrenechea, CA's senior vice president of product development, spoke with *Computerworld* last week about an offshore strategy that calls for spending a growing percentage of CA's development dollars on programmers in China and India. Barrenechea stressed that this is being accomplished without sacrificing U.S. developer jobs. Excerpts from the interview follow:



How much of your development work is done offshore? We're going to put our corporate dollars in emerging markets. It's a natural thing to do. We have a big presence in Australia; we have a growing presence in Hyderabad, India; a growing presence in Hong Kong and Beijing; a growing presence in Eastern Europe.

Are those developer positions ones that are currently in the U.S. that are being moved overseas? No. We are expanding our R&D efforts by supplementing them with labor in markets that are growing and emerging for us. We have not replaced jobs in the U.S. with overseas jobs. As we get more efficient in what we do, we do free up dollars that we can reinvest.

Will developers in India and China constitute a growing percentage of your software development workforce? Yes.

You have a set amount of money you can pay for developers. Is it accurate to say that the percentage of that money going to foreign developers is rising? Yes. It's the same for all software companies. It's true for CA, it's true for the industry.

What does that curve look like – that increasing curve of money being shifted to overseas developers? The way that I think it's most appropriate to have the dialogue is to say that I'm going to put our investment into the markets that are emerging. For me, it's not cost optimization, although there is a benefit to that. It is investing in markets that are growing.

Are there developers at CA who can legitimately complain that they're losing their jobs to workers in China and India? I think most developers I talk to welcome the concept. Because at the end of the day, they want to compete, and they want to win, and they want to provide value in what they do. And if we can give them more skilled programmers to get it done, they're happy to work in this model.

But that skirts the question. Are there or are there not U.S. developers at CA who are losing their jobs to overseas developers? My answer is no. That is not the approach we're taking.

– Don Tennant

MORE ONLINE

To read an expanded version of this interview, visit our Web site:

QuickLink 46693
www.computerworld.com

HP, Sun Launch RFID Test Centers

Each offers services to help companies comply with product tagging mandates

BY CAROL SLIWA

The RFID bandwagon continues to pick up steam, as Hewlett-Packard Co. and Sun Microsystems Inc. launch test centers and other offerings to assist companies facing mandates from retailers such as Wal-Mart Stores Inc. to adopt the technology.

Last week, Sun opened the doors to its 17,000-square-foot RFID Test Center in Carrollton, Texas, where companies can test and evaluate equipment in an environment that simulates the warehouses where they will deploy radio frequency identification tags and readers. Sun also plans to show users at the center how to get long-term business benefits by integrating RFID data with their back-end systems.

Meanwhile, HP today will announce the launch of its RFID Center of Excellence in Palo Alto, Calif., where customers can learn more about the vendor's RFID vision, build RFID road maps and conduct proofs of concept.

"It's a good place to show people what's possible, how things are going to look, what's going to pan out," said Salil Pradham, chief technologist for HP's RFID program.

HP plans to share lessons it has learned as a participant in the pilot that Wal-Mart launched last month with eight product manufacturers at select stores and one regional distribution center in the Dallas/Fort Worth area, according to Pradham. HP is affixing RFID tags to pallets, cases and boxes of PCs, printers, scanners, ink-jet cartridges and other products it ships to Wal-Mart.

HP's services unit also introduced a trio of new offerings: an RFID Discovery Service to help companies that are developing their own RFID strategies; an RFID Readiness Assessment that calls for a review of business processes, applications and infrastructures to produce a deployment road map; and an RFID Adaptive Starter Kit to help companies justify their investments through proofs of concept conducted at their own sites or at the HP center.

Building a Business Case

But internal experience with RFID had little to do with Conros Corp.'s selection of HP to help with a pilot project to ensure that its tags and readers work accurately, said CEO Navin Chandaria. He said he wanted to work with a company that cuts through bureaucratic red tape, gets excited about taking risks and understands both technology and business.

North York, Ontario-based Conros, a supplier of artificial fire logs and other products to Wal-Mart, is also working with HP on software that will help the company make use of the data generated by RFID systems, Chandaria added.

Although many industry analysts say Wal-Mart's suppliers are having a tough time building an internal business case for RFID, Chandaria said he has no doubt that his company's investment in RFID technology will be worth it.

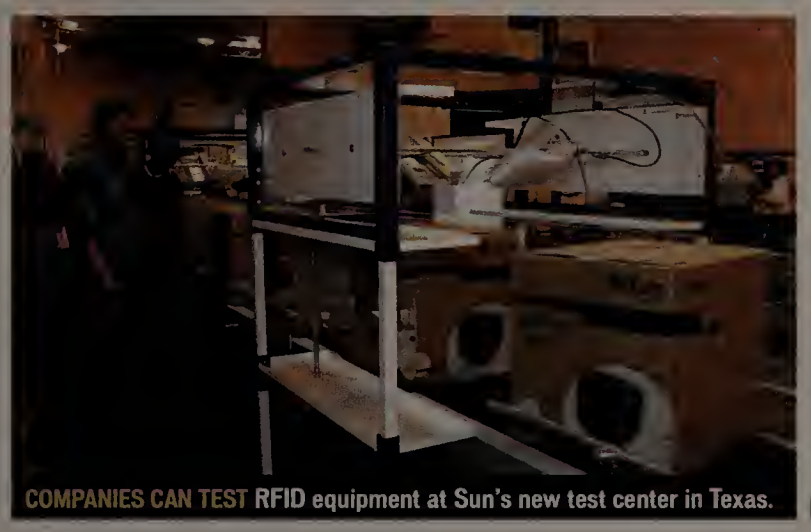
Victor Garcia, the managing principal for HP's wircless and mobility program in Toronto, predicted that Conros will see a return on its investment within a year or two, based on increased inventory visibility and improved efficiencies.

Sun and Paris-based Capgemini announced last week that they are launching a jointly developed RFID service and product offering that is aimed at optimizing the full supply chain.

Juan Carlos Soto, director of advanced development at Sun, said Capgemini brings RFID expertise, and his company brings the systems to analyze, manage and process the data that will be generated.

But Jeff Woods, an analyst at Gartner Inc., said that if customers merely want to comply with the Wal-Mart mandate by taking a "slap and ship" approach, such partnerships and expensive offerings will fall apart. "You don't need $300-an-hour consultants to tell you how to label products," he said.

Woods claimed that most suppliers facing compliance deadlines from Wal-Mart have given up on finding an internal business case at this point. 46748



COMPANIES CAN TEST RFID equipment at Sun's new test center in Texas.

Printing Services Getting Outsourced to Cut Costs

Some companies find equipment too expensive to own, hard to keep track of

BY PATRICK THIBODEAU

Ford Motor Co. estimates that its maintenance and support costs for office printing are in the range of $40 million to $50 million. But that's only an estimate. While Ford knows how many PCs it has — 172,000 — it can't say for certain how many printers are installed.

"The reality is, we don't know how many devices we've got," said Clive Johnson, Ford's European deskside services manager. But based on its studies and pilots, the automaker maintains that under its recently signed agreement with Hewlett-Packard Co., it can reduce printing costs by 20% to 30%.

Johnson said he's become so aware of the cost of printing that when he sees papers in a wastebasket, "I don't see paper in there, I see dollars in there."

Ford officials last week shared details of a printer outsourcing agreement it signed with HP, which follows pilot projects at Ford facilities in London and Dearborn, Mich. Ford and HP officials declined to disclose the value of the contract, however.

Ford is one of the largest and most visible companies to outsource its printing services. But analysts say there's accelerating interest in improving printer management, and in many cases, companies may choose to outsource.

"The problem that Ford has is very, very common," said Ken Weilerstein, an analyst at Gartner Inc. in Stamford, Conn. Most companies don't know how much they are spending, he said, adding, "They don't really know how they are using the equipment, and they really can't pinpoint the benefit from what they've got."

Gartner estimates that by the end of next year, 60% of companies will have undertaken initiatives to cut document printing costs. "It is very much the topic of interest," said Weilerstein.

FACTOID

60% of companies will have initiatives under way to cut printing costs by the end of 2005, according to Gartner.

Ford has a proliferation of printers that came into the company "one way or another," said Johnson. These printers aren't managed and are often ink-jet models, which are cheap to buy but expensive to run, he said.

The company began looking at options several years ago, examining multifunction devices that can scan and fax as well as print, but it felt that the technology wasn't mature. That opinion has changed.

HP will install multifunction laser printer devices that can be networked, giving Ford the ability to monitor printer use through a portal. Ford employees will replace paper and toner, but HP will manage the remaining functions.

Printer outsourcers are paid in a variety of ways, from per page to fixed rates. But key to any payment method is having a view into how printers are used, users said.

Tim Armstrong, chief financial officer and former CIO at Vinson & Elkins LLP, has outsourced printing operations for the past three years to Lexmark International Inc. in Lexington, Ky. Attorneys at the Houston law firm print about 30 million pages annually. Printing costs used to account for about 5% of its IT spending; they're now about 2.9% to 3.2%. Armstrong said he believes costs will decline further as the firm installs more shared printers. 46749

MORE ONLINE

Multinational firms can receive integrated offerings as a result of an outsourcing deal between HP and BP Group:

QuickLink 46756
www.computerworld.com

BRIEFS

SCO Cuts Jobs In Bid for Profits

The SCO Group Inc. said it has laid off an unspecified number of workers in an effort to make its Unix software operations profitable by the end of its third quarter in July. A spokesman said the cuts affected less than 10% of the Lindon, Utah-based vendor's 275 employees. But he added that the move involved workers in all departments, including engineering.

Delta Stays Mum on Cause of IT Glitch

Delta Air Lines Inc. declined to comment about the cause of a systems glitch that forced it to cancel about 40 flights and delay an unspecified number of departures on May 1. The Atlanta-based airline has "resolved the situation," said a spokeswoman. But, she added, "as a matter of company policy, we will not provide additional information on the issue to ensure the protection of our IT systems."

Gates Pays Fine Over Stock Buy

The U.S. Department of Justice said Bill Gates, Microsoft Corp.'s chairman and chief software architect, has agreed to pay an $800,000 civil penalty to settle charges that he violated stock-buying requirements in 2002. The case involved a $50 million stock purchase that Gates made in ICOS Corp., a pharmaceutical maker in Bothell, Wash., through his personal investment company.

Short Takes

The BRITISH BROADCASTING CORP. has chosen Accenture Ltd., Computer Sciences Corp. and Siemens AG as the finalists for an IT services deal that will include the sale of its BBC Technology Holdings Ltd. unit. . . . SAP AG said it plans to increase its head count of software developers in India to 1,500 by year's end, up from about 1,000 now.

ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY GOSSIP BY MARK HALL

MATTHEW FAULKNER

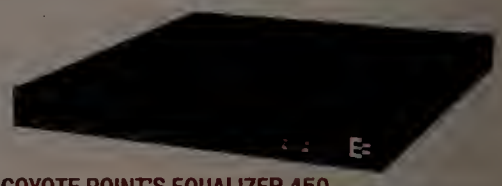
Scrapping and Fixing Data Can Cost . . .

. . . companies at least 10% of their yearly revenue. And if your data quality is bad enough, that figure can reach a staggering 25%. That's the analysis of Larry English, president of Information Impact International Inc., a data quality consultancy with headquarters in Brentwood, Tenn. He points out that it's not cheap to hunt down and eliminate or fix bogus information. But indirect costs can be far greater — you could lose customers if you jerk them around with bad information, and ambiguous or absent data could result in missed opportunities. So, it's undoubtedly a Martha-Stewart-quality good thing that Firstlogic Inc. in La Crosse, Wis., this week unveils its beta version of IQ8 Integration Studio. The new product helps you work with your line-of-business colleagues to define data quality policies that can be applied across all applications throughout the company. It uses standards-based Web services to link to other programs. It also comes with Data Quality Blueprints, templates designed for specialized data-quality needs such as those of consumer marketing groups. The product can be run in batch mode or be applied to real-time transactions. It works with data on Oracle, SQL Server and MySQL databases. DB2 compatibility is in the works. The IQ8 Integration Studio will be generally available June 30, with prices starting at $100,000.

Multifunction network appliance claims . . .

BILL KISH says no network appliance can claim to do everything.

. . . irk load-balancing vendor. Bill Kish, CEO and CTO of Coyote Point Systems Inc. wants to respond to statements made here by Craig Stouffer, marketing vice president at Redline Networks Inc. [QuickLink 45582]. "You can produce an appliance that you claim can do everything. But it won't do anything particularly well," Kish fires back. He says he has heard such claims from other companies, too. But he argues the only vendor that could conceivably make such a claim is his neighbor Cisco Systems Inc. "And, as far as I know, they're not," he adds. Kish suggests that "dedicated solutions" are far better because the engineers don't stray too far from their area of expertise. Still, in the coming months San Jose-based Coyote Point Systems will add data compression to its line of Equalizer traffic management appliances and shift from building its hardware to getting it directly from Dell Inc. and adding the software. Equalizer appliances start at $3,995.



COYOTE POINT'S EQUALIZER 450

New network traffic management vendor elbows . . .

. . . its way into crowded market. What with Cisco, Coyote Point Systems, NetScaler Inc., Redline and many others offering an array of traffic management gear, you'd think that would be enough. Nope. This week comes the announcement that Crescendo Americas Inc. in Dublin, Calif., will open its doors for business, selling the CN 5000-E appliance running its Maestro network traffic management software. President Steve Elston says that with 1 Gigabit Ethernet making headway in data centers and 10 Gigabit "just around the corner," Web, application and database servers will collapse under the increased load. The appliance, now in late beta, will ship in early June and set you back about $19,995.

Sarbanes-Oxley smiles on BPM . . .

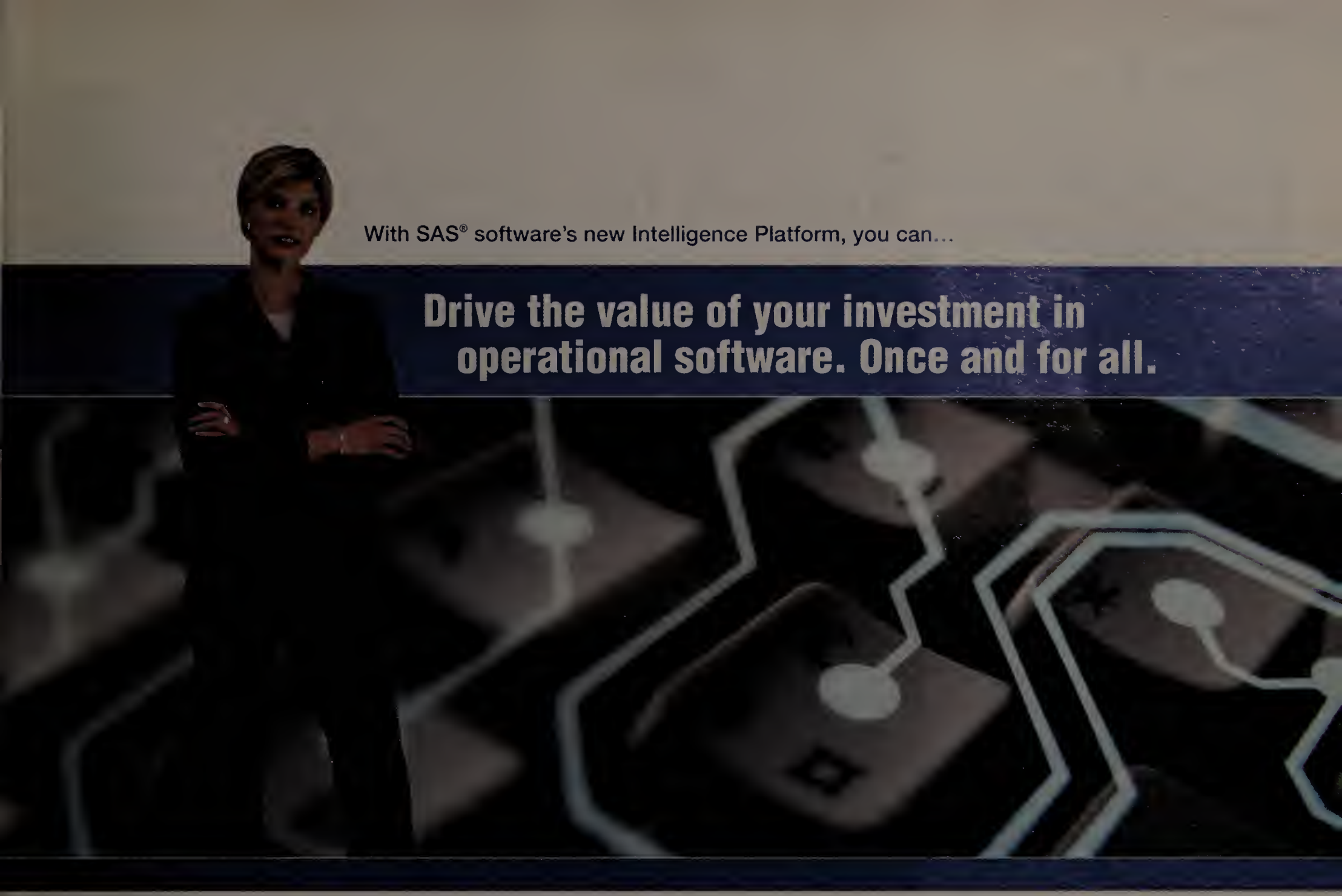
. . . vendors that offer compliance templates. Suppliers of business process management (BPM — not to be confused with the other BPM, business performance management) tools are quickly churning out modules with dashboard viewers so executives can check at a glance whether they are in compliance or in danger-Will-Robinson territory. The willingness of jail-conscious CEOs and CFOs to sign hefty checks for BPM software helped propel 15% growth for the market segment last year, according to Dataquest Inc.

$4bn

BPM revenue in 2003, according to Dataquest.

Sebastian Risse, director of product development at CommerceQuest Inc. in Tampa, Fla., says last year was also the first time BPM ceased to be "a solution looking for a problem." Competitor Daryn Walters, vice president of worldwide marketing at HandySoft Global Corp. in Vienna, Va., adds that buying patterns shifted in 2003 from purely an IT sell to one that now includes the business units, which seem more willing to invest than IT did. Sensing that they have a chance to broaden their value inside companies, BPM vendors are dipping their toes into new areas. For example, an upcoming release of CommerceQuest's Traxion BPM software will be able to integrate with Microsoft Project — or eliminate it, since Traxion will have a complete project management engine. And HandySoft, which this week unveils its BizFlow 9 upgrade, includes a new simulation tool that lets you run what-if scenarios on how changes to a business process will affect an organization. It will also come with a risk mitigation feature that warns users when a given process's conditions get out of whack. Look for BPM to become the blazing buzzword (or is that buzz-acronym?) of 2004.

46730



With SAS® software's new Intelligence Platform, you can...

Drive the value of your investment in operational software. Once and for all.

INTELLIGENT STORAGE

ETL PROCESS

DATA QUALITY

BUSINESS INTELLIGENCE

ANALYTIC INTELLIGENCE

SAS introduces a software breakthrough for sharing mission-critical intelligence, in just the right context, with everyone from executives to knowledge workers. And for increasing the value of your IT investment every step of the way – from aggregating and ensuring the quality of data, from any source, to transforming that data into predictive insight using the world's best analytics. Can one intelligence platform truly fit all your needs, within IT and across your enterprise? Let us prove it. Call toll free **1 866 791 3183** or visit our Web site.

www.sas.com/itbreakthrough

SAS 9

The Power to Know. | sas®

SAS and all other SAS Institute Inc. product or service names are registered trademarks or trademarks of SAS Institute Inc. in the USA and other countries. ® indicates USA registration.
Other brand and product names are trademarks of their respective companies. © 2004 SAS Institute Inc. All rights reserved. 280423US.0404

Cisco Adds Support for WLANs to Its Switches

New module will let Catalyst 6500s centrally manage wireless networks

BY BOB BREWIN

CISCO SYSTEMS INC. last week announced plans to add wireless LAN management capabilities to its Catalyst 6500 switch line, a move that will give IT managers the ability to control their wired and wireless networks from a single device.

Cisco is aiming the Wireless LAN Services Module (WLSM) at large corporate, academic and health care networks, said Bill Rossi, vice president of its WLAN division. He added that the Catalyst 6500 add-on supports 50-millisecond handoffs between wireless access points when end users roam across WLAN subnetworks, improving Cisco's ability to support applications such as voice over IP.

Network managers can also use WLSM-equipped switches to add firewalls plus intrusion-detection and filtering capabilities to WLANs, Rossi said. In addition, they can segment groups of mobile users and give them different levels of access to data.

John Hummel, CIO at Sutter Health in Sacramento, said he's testing the WLSM and plans to use the device to manage Cisco-based WLANs in Sutter's 25 hospitals in California. He also intends to use the module to manage VoIP calls when Sutter starts testing hands-free voice devices made by Vocera Communications Inc. later this year.

Sutter is engaged in a massive project to upgrade its hospital buildings and the IT networks in them. Many of the hospitals are insulated with asbestos, and Hummel said installing WLANs is far less expensive than the cost of the asbestos mitigation work that would be needed to build new wired networks.

The base configuration of the WLSM costs $18,000 and can manage up to 150 of Cisco's access points. For another $8,000, users can buy a license for the company's Internetworking Operating System software that lets them control a total of 300 access points. Rossi estimated that the total cost of adding a WLSM module to a Catalyst 6500 switch and installing wireless access points would be between $500 and $1,000 per access point.

That would be roughly comparable to what competitors like Airespace Inc. and Symbol Technologies Inc. charge for switch-based systems that only manage WLANs. For example, San Jose-based Airespace sells its access points for $400 and switches for $12,000 to $14,000. Jeff Aaron, senior manager of marketing at Airespace, said that he found "nothing surprising" in the WLSM announcement and claimed that Cisco was following his company's technology lead.

Aaron acknowledged that Cisco's addition of WLAN support to its market-leading switches could put competitive pressure on other vendors, but he said Airespace hopes to continue taking advantage of its reseller deals with Alcatel, NEC Corp. and Nortel Networks Ltd.

"Airespace put the switch into wireless, and Cisco put wireless into the switch," said Craig Mathias, an analyst at Farpoint Group in Ashland, Mass. He added that he thinks the market for enterprise-class WLANs is starting to heat up now that many security concerns have been resolved.

Cisco has been a proponent of decentralized WLANs, but Rossi said the addition of the WLSM isn't a wholesale change. The company will continue to build software that manages the airwaves and security functions into its access points, he said. **46746**

Cisco Rivals Ready WLAN Responses

In the wake of Cisco's Wireless LAN Services Module announcement, Airespace and Symbol Technologies will both announce plans to beef up their WLAN product lines at this week's Networld+Interop conference in Las Vegas.

Airespace will introduce its Intelligent RF Access Point, which uses so-called smart antenna technology to improve WLAN performance. Four receive and four transmit antennas are mounted on the access point, allowing it to select the best radio frequency paths to and from mobile users, said Jeff Aaron, senior marketing manager at Airespace.

The multiple-antenna setup also helps reduce interference between access points and client devices and can help IT managers zero in on rogue access points installed on a network, Aaron added. The new access point is due in the third quarter and will be priced at an undisclosed premium over Airespace's standard access points, which sell for about $400.

Airespace also plans to introduce software that can pinpoint the locations of mobile devices "within a few meters" using radio frequency fingerprinting technology developed by the company, along with a location appliance that can track thousands of wireless clients simultaneously, Aaron said.

Holtsville, N.Y.-based Symbol Technologies is will announce its Mobility Services Suite, a set of applications that IT managers can use to automatically provision, configure and manage mobile devices and WLANs. Lee Williams, general manager of Symbol's mobility division, said the software will be available in July or August.

– Bob Brewin

MORE N+I NEWS

For additional coverage of the conference and products being announced there, visit our Web site:

QuickLink 46738
www.computerworld.com

Proposed Bill Seeks Stronger Privacy Protection Offshore

Status of data now offshore unclear

BY JAIKUMAR VIJAYAN

Proposed legislation in Congress could have some important privacy and security implications for companies outsourcing work to offshore destinations.

The bill (S1232), called the Safeguarding Americans From Exporting Identification Data Act (SAFE-ID), was introduced by Sen. Hillary Rodham Clinton (D-N.Y.) last month.

It has been referred to the Senate Committee on Commerce, Science and Transportation.

Calls to Sen. Clinton's office seeking comment weren't returned, so it's unclear whether a hearing on the bill has been scheduled or whether a companion bill has been introduced in the House.

"We don't know if this thing has legs or not yet," said Peter Adler, a partner at Foley & Lardner LLP in Washington. "But I don't think that this will be the last we are hearing of bills such as this." California alone has more than a half-dozen pending bills that seek to impose varied privacy safeguards on outsourced personal information.

In SEN. CLINTON 's bill, companies must meet a set of privacy-related conditions to transmit data abroad.

Driving interest in such legislation are the growing privacy concerns relating to financial and health care information being sent offshore as part of outsourcing initiatives, including medical transcription work, he said.

SAFE-ID proposes a set of privacy-related conditions that need to be met by U.S. companies transmitting personally identifiable information to a foreign affiliate or subcontractor. Under the proposed act, companies could transmit such information to any country that is deemed by the Federal Trade Commission to have a legal system that provides for "adequate privacy protection."

But the law as proposed doesn't address data that has already been transmitted to and stored in foreign locations, said Stephen Wu, CEO of Infosec Law Group, a law firm in Mountain View, Calif. It's also vague about what would happen in situations when data might be retransmitted by subcontractors, said Wu. "There's going to be a lot of interpretations if this becomes law," he said. **46751**

Microsoft
Your potential. Our passion.™

Expand that thought.

Visual Studio .NET 2003 can cut development time by two-thirds, giving you more time to think.

Got a big idea? Visual Studio® .NET 2003 delivers higher productivity, helping you turn that big idea into reality faster than you ever thought possible. Want proof? Visual Studio .NET enabled Xerox Global Services to bring the v2.0 release of its CentreWare Web software to market in one-third the time compared to their previous development platform. To find out how Visual Studio .NET 2003 can help you quickly turn your big ideas into reality, visit msdn.microsoft.com/visual/think

Microsoft® Visual Studio®

Sasser Outbreak Demonstrates Need for Quick Patch Response

Vulnerability management is key to defenses as attackers improve tactics

BY JAIKUMAR VIJAYAN

LAST WEEK'S Sasser worm outbreak, which disrupted operations at some businesses while leaving most virtually untouched, highlighted the difference a good vulnerability management strategy can make to a company's defenses, users and analysts said.

The W32/Sasser worm started spreading on April 30, and by the middle of last week, it had infected hundreds of thousands of systems globally.

The worm took advantage of a flaw in a Windows security and authentication component that Microsoft Corp. disclosed on April 13. Microsoft released a patch to fix the problem on the same day, and since then, the company and several security experts have been urging users to install the update as soon as possible.

The fact that the worm managed to infiltrate some corporate networks despite the warnings shows that there is still progress to be made in promptly responding to such vulnerabilities, said Art Manion, a member of the CERT Coordination Center at Carnegie Mellon University.

"Some organizations have streamlined patching and policy management to roll out important updates in a matter of days," said Ken Dunham, an analyst at Reston, Va.-based iDefense Inc. "Others are so careful and test so many features that they end up being vulnerable for an extended period of time."

A large majority of those infected last week were believed to be home users. But several large organizations were hit as well, including American Express Co. in New York. An Amex spokeswoman said that "some employee desktops" were affected by the worm. "But we never had any issues with our networks or service," she added.

> **"The big thing was the speed with which we were able to deploy patches to our desktop."**
>
> **BILL BLIX**, GLOBAL INFRASTRUCTURE VULNERABILITY MANAGER, TRW AUTOMOTIVE

"This was a big one. But I am amazed that it got as far as it did," said Firas Rouf, chief operating officer at eEye Digital Security, an Aliso Viejo, Calif.-based provider of vulnerability assessment services.

Several users said companies would have been protected if they had followed long-recommended security measures, such as knowing where vulnerabilities exist, prioritizing threats and responses, applying appropriate patches, keeping antivirus software up to date, blocking unused ports and installing firewalls on end-user desktops.

TRW Automotive Holdings Corp. in Livonia, Mich., escaped Sasser thanks largely to new patch management software that it had just finished deploying across 22,500 systems globally. The software from Emeryville, Calif.-based BigFix Inc. helped TRW identify vulnerable systems and deploy patches to them in an automated fashion.

"The big thing was the speed with which we were able to deploy patches to our desktops," said Bill Blix, TRW's global infrastructure vulnerability manager.

Proactive Approach

Meanwhile, software- and hardware-based firewalls installed on every end-user system protected St. Louis-based Tripos Inc. against Sasser.

As soon as the drug research firm heard of the vulnerability, it changed the settings on those firewalls to proactively block any attacks, said Jerry Wintrode, senior network architect at Tripos.

It also changed the settings on a policy enforcement server at the edge of its networks so that it would automatically shut out any remote system that might have somehow been infected, Wintrode said. (See "Extended Enforcement," page 21.)

Attackers are getting quicker and more efficient at taking advantage of new flaws. Last year's damaging Blaster worm — which Sasser was compared to — took about a month to hit the Internet after the flaw it exploited was first announced. In contrast, Sasser took less than three weeks.

Patches and work-arounds can be faulty or break existing applications and need to be carefully tested before they are deployed. Companies also need to make more of an effort to ensure that systems belonging to mobile and home-based users don't infect otherwise clean networks. But a plethora of tools are becoming available today that are making the task more manageable, Rouf said.

"It's not easy," he said. "On the other hand, it's not as hard as it used to be." **46753**

Microsoft Outlines Plans for Longhorn, 64-bit Computing

SEATTLE

At its annual Windows Hardware Engineering Conference (WinHEC) here last week, Microsoft Corp. outlined its latest plans for Longhorn and 64-bit Windows, as well as a proposal designed to help users connect devices via Web services.

Jim Allchin, Microsoft's group vice president of platforms, confirmed during a keynote address that Microsoft has "tied together" development efforts for the client and server versions of Longhorn, the code name for the next major Windows release. Allchin didn't clarify whether aligning development of the Longhorn client and server also means that they will be released simultaneously.

But in March, Bob Muglia, senior vice president of Microsoft's Windows Server division, told *Computerworld*, "They will almost always ship at different times in the future. Clients need slightly less bake time than servers do."

A first Longhorn beta is still planned for early next year, Allchin said. Although Microsoft has pointed to 2006 as the internal target date for the Longhorn client release, Allchin didn't give a target date for the client or server versions of the software. All WinHEC attendees received a developer preview version of Longhorn.

Also last week, Microsoft announced that it will deliver versions of Windows XP and Windows Server 2003 for 64-Bit Extended Systems in the fourth quarter. Previously, the company had said only that it would ship the software in the second half of the year.

ALLCHIN says Microsoft development efforts for Longhorn clients and server versions are being aligned.

Microsoft also plans to release versions of Longhorn for Itanium and 64-bit extended systems as well as a 32-bit edition, according to Greg Sullivan, a lead product manager for Windows.

In a keynote address, Microsoft Chairman and Chief Software Architect Bill Gates said he expects that by the end of 2005, nearly all of the processors shipped by Advanced Micro Devices Inc. and the majority of the processors Intel Corp. ships will support 64-bit computing.

Gates predicted that the move from 32 to 64 bits will be smoother and faster than previous transitions, which he said were sometimes "messy."

Microsoft executives urged hardware makers to build drivers for the upcoming 64-bit releases of Windows, lest the adoption of 64-bit computing be held back by hardware incompatibilities.

"The app compatibility is good, the OS support is comprehensive. What's the one thing we need? Sixty-four-bit drivers," Allchin said.

Also at WinHEC, Microsoft, Intel, Lexmark International Inc. and Ricoh Corp. detailed new Web services technology that is designed to make it easier for users to connect devices such as printers, digital cameras and digital music players over a network.

– Joris Evers, IDG News Service

MORE THIS ISSUE

Frank Hayes finds a method to worm writers' madness. Page 46

More Online: Visit our Virus and Worm Center for additional information:

QuickLink a1280
www.computerworld.com

These days, no network is free of threats. That's why you have to assign network security privileges to everyone. Employees, customers, and partners. You need to set an acceptable use policy that dictates what each of them can and can't access. Until now, you had to do this manually.

Not anymore. Now you can do what Baylor University did. Implement an Enterasys Secure Networks™ solution with a unique, policy-based system that empowers the network to allocate resources based on specific users and their roles. The network "sees" who the user is and assigns privileges accordingly. This improved control also gives you more security.

It's all about giving you a smarter way to network with central, intuitive management. Find out more by visiting enterasys.com/seconds. Or ask any one of the many enterprise customers we've worked with for years.

Siebel Taps IBM Sales Chief for CEO Post

Founder remains chairman, gives up management role

BY MARC L. SONGINI

THOMAS SIEBEL last week passed the CEO's mantle at the CRM vendor that bears his name to veteran IBM executive Michael Lawrie — a move that comes as Siebel Systems Inc. is trying to rebound from two-plus years of declining revenue.

Siebel will remain as chairman and continue to be a full-time employee of the company. But he said during a teleconference that Lawrie, who previously was head of worldwide sales operations at IBM, will take over full management responsibility. "Mike runs the company," Siebel said. "The executive team reports to Mike."

Tim Arnold, IT manager at Bose Corp., said the management change probably won't have much of a day-to-day impact on the Framingham, Mass., maker of audio systems. But Lawrie's addition may help dislodge Siebel from its financial rut, added Arnold, whose company uses the vendor's sales force automation software and other applications.

"Hopefully, some new blood will make a difference," he said. "Sometimes you just need a new perspective."

However, Lawrie said he doesn't plan to make any "significant changes" to Siebel's management team over the next 12 months. The new CEO added that he intends to maintain the company's current strategy as well.

It's still unclear what the transition's effect on users will be, said Ken Casey, vice president of corporate services and operations at Alberta Treasury Branches, an Edmonton-based bank that runs Siebel applications in its call centers and branch offices.

LAWRIE will have full management responsibility at Siebel.

Casey said that he respects Lawrie and that the bank has had a "good relationship with IBM over the years." As part of the Siebel installation, the bank uses IBM's mainframe and Unix systems and Windows-based Netfinity servers, plus its MQSeries messaging software and DB2 database.

Lawrie has a lot of work to do to restore Siebel's reputation for developing products that give users "great value and great satisfaction," said Rebecca Wettemann, an analyst at Nucleus Research Inc. in Wellesley, Mass. "There are Siebel licenses [at customer sites] that are not being used. They must identify those folks and take a harder look at customer satisfaction."

Siebel's annual revenue has fallen from $2.04 billion in 2001 to $1.35 billion last year. The company last month reported first-quarter revenue of $329.3 million, down slightly from the year-earlier level — but it said software license sales rose 13% year over year.

Tom Siebel, 51, last week said he decided a year ago to split the roles of CEO and chairman. Siebel added that as chairman, he will "assist in any way I can," with his duties to include providing input on corporate strategies and working to foster relationships with users and business partners.

Lawrie, 50, had worked at IBM for the past 26 years and was a senior vice president there. IBM and Siebel did about $1 billion worth of joint business last year, according to Tom Siebel. In addition, IBM has an internal installation of about 60,000 Siebel end-user licenses, making it one of the CRM vendor's largest users.

Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif., said adding Lawrie may not give Siebel a long-term boost. "Lawrie says he's playing the same game with the same set of cards," Greenbaum said. "And with Tom watching over his shoulder, I doubt we'll see that new, dramatic shift that Siebel needs to recapture its former glory." **46697**

SAP Seeks to Boost Use of Middleware Suite

BY MARC L. SONGINI

SAP AG plans to use its Sapphire '04 conference this week to try to sell its ERP installed base on the idea of investing in newer products, particularly the company's NetWeaver middleware technology.

At the conference, which starts tomorrow in New Orleans, SAP will unveil new bundles of its business applications and announce a deal with a large maker of consumer packaged goods to jointly develop a CRM offering for users in that market, said SAP America Inc. spokesman William Wohl. He declined to disclose the identity of the consumer goods company or provide further details about the agreement.

But SAP's main goal at Sapphire will be to demonstrate to users that products like NetWeaver can help them cut IT operating costs, Wohl said. NetWeaver, which includes an integration broker and products such as SAP's data warehousing and portal software, is designed to help users seamlessly link SAP's applications with ones from other vendors.

Lori Schock, global business process manager at silicone products maker Dow Corning Corp. in Midland, Mich., said she plans to attend Sapphire to learn more about NetWeaver and mySAP ERP, the latest version of SAP's flagship R/3 software. The conference "will allow us to validate our architectural strategic intent," Schock said, noting that Dow Corning is running pieces of NetWeaver in pilot mode.

NEW SOFTWARE

SAP plans to announce these products at Sapphire:

- A set of business applications that are tailored for public-sector users
- A CRM bundle for midsize companies that includes software, services and best-practices guidance

The NetWeaver technology could make it easier to link R/3 to SAP's Business One applications for small and midsize users and to software from other vendors, Schock said. She added that she also wants to investigate SAP's radio frequency identification technology — "fact, fiction and future."

In March, SAP said it was building support for RFID tags into an upgrade of NetWeaver that is more unified than earlier versions were [QuickLink 45409]. And last month, the company announced that users will be able to incorporate RFID data into a release of its supply chain management applications now in beta testing.

Mike Perroni, vice president of IT at Halliburton Co. in Houston, said he has particular interest in an employee self-service module that will be included in the next version of SAP's Enterprise Portal software, one of the NetWeaver components.

Because SAP has put so many components under the NetWeaver umbrella, it's hard to judge how widely the middleware technology is being adopted by users, said John Moore, an analyst at ARC Advisory Group Inc. in Dedham, Mass. And it's an open question whether users will swallow NetWeaver whole or just install pieces of the software, Moore said. **46726**

With Lawrie Leaving, IBM Shifts Execs

IBM last week reshuffled several of its top executives in connection with Michael Lawrie's decision to leave his sales job there and take over the CEO position at Siebel.

Doug Elix, who had been running the company's IT services and outsourcing unit since October 1999, was named to replace Lawrie as head of sales and distribution operations. Taking over for Elix at IBM Global Services is John Joyce, the company's chief financial officer for the past five years. Mark Loughridge, who had been general manager of global financing, was tapped to be CFO.

All three executives are senior vice presidents and report to Sam Palmisano, IBM's chairman and CEO.

In an internal memo outlining the changes to IBM employees, Palmisano noted Lawrie's departure but described the series of management changes as business as usual for IBM.

"The intent of these leadership changes is straightforward – to step up the pace of our marketplace execution and accelerate our strategic growth plans," Palmisano wrote.

– Stacy Cowley, IDG News Service

Red Hat Offers Desktop Linux for Corporate Users

BY ROBERT McMILLAN AND TODD R. WEISS

Red Hat Inc. last week announced a desktop version of Linux that is designed for mainstream corporate users and includes open-source document-processing applications and messaging software.

The new release, called Red Hat Desktop, is a companion product to the vendor's current client-level offering. But the existing product, Red Hat Enterprise Linux WS, is aimed at technical users such as software developers and computer-aided design engineers, not office workers.

And unlike the technical release, which is sold on a per-system basis, Red Hat Desktop will be available in packages of 10 or 50 units when it begins shipping this month, said Mike Ferris, Red Hat's product marketing manager for Enterprise Linux.

Lt. Fred Wissing, application development services supervisor for the New Jersey State Police in West Trenton, plans to take a close look at Red Hat Desktop for possible use by the department's 4,000 end users. "We're going to snarf up a copy and install it and see what it can do," he said, adding that the evaluation process will include an examination of the existing end-user applications to see how many of them would have to be modified to use Linux.

Wissing said the department already uses Linux for a variety of back-office server functions, but only one power user is currently running desktop Linux as part of a trial. Several IT staffers have also installed Linux on their desktops, he said.

Red Hat Desktop will include open-source applications such as OpenOffice 1.1, the Evolution e-mail client and the Mozilla Web browser, Raleigh, N.C.-based Red Hat said.

Dan Kusnetzky, an analyst at market research company IDC, said the fact that Red Hat is already known in the corporate server market should help the desktop software gain acceptance from users. But Red Hat will need more than that to succeed with the product, he added.

"They're going to need partnerships with every single one of the desktop hardware suppliers," Kusnetzky said. "If there isn't a strong story about how Linux comes preinstalled on the desktop hardware of your choice, then it will not be as broadly interesting."

Ferris said Red Hat executives are working with systems vendors to develop plans for marketing the software, but he added that no hardware makers are ready to announce support for Red Hat Desktop.

PRODUCT DETAILS

Red Hat Desktop

- Runs on single-CPU systems with Intel or AMD processors and up to 4GB of main memory
- Comes bundled with Red Hat's network proxy or satellite server software
- Includes 30 days of telephone support and one year of Web-based support
- Costs $2,500 per year for a 10-user proxy server starter pack or $13,500 annually for a 50-user satellite server installation

In March, Hewlett-Packard Co. said it would make Novell Inc.'s SUSE Linux software its standard desktop distribution of the operating system. HP supports Red Hat Linux on some of its notebook PCs and plans to do so on its desktop systems, an HP spokeswoman said. But she declined to comment on whether HP specifically plans to support Red Hat Desktop. **46758**

McMillan is a reporter for the IDG News Service.

READ MORE ONLINE

Q&A: Red Hat CEO Matthew Szulik on the market for desktop Linux:
QuickLink 46679
www.computerworld.com

Correction

IN LAST WEEK'S On the Mark column, pricing for the NetScaler 9000 from NetScaler Inc. was incomplete. The $115,000 price is for a 5,000-user license.

Continued from page 1

Wall Street

centers farther away from their primary computing facilities, according to IT managers.

Steve Randich, CIO at Nasdaq Stock Market Inc. in New York, last week said that a combination of "peer pressure and regulatory pressure" is prodding companies to ensure that their systems will keep running if a disaster occurs.

For example, the U.S. Securities and Exchange Commission last month approved rules proposed by the National Association of Securities Dealers Inc. and New York Stock Exchange Inc. that require firms to submit business continuity plans detailing how they will provide ongoing access to systems during an emergency. The plans are due by Aug. 5 for NYSE members. The NASD set deadlines of Aug. 11 for firms that clear stock trades and Sept. 10 for brokerages that initiate transactions.

In addition, the Securities Industry Association next week plans to conduct a business continuity tabletop exercise in conjunction with the Bond Market Association. The SIA said government regulators will be present at the event, in which participants will walk through the process of responding to an emergency and coordinate their disaster recovery plans.

Nasdaq announced two weeks ago that it had run tests at its two data centers to check the disaster recovery capabilities of member companies. The tests involved more than 50 brokerages and were conducted at the exchange's primary data center in Connecticut in February and at its backup facility in Maryland last month.

"It's not that the regulators are mandating to see test results, although internal and external auditors and the SEC have collected records on the outcome of our tests," Randich said. "It's just short of a mandate, but that's enough to encourage people to ensure this all works seamlessly."

Randich said there was no system downtime at Nasdaq or the participating firms during the tests. "What we didn't know for certain was our market participants' ability to run [transactions] out of their backup sites," he said. "This was the first time outside of a disaster scenario where we were able to validate that their operations were good."

Peter Poulos, director and head of the business continuity group for the Americas at Credit Suisse First Boston LLC in New York, said he thinks "every major securities firm on the Street" is facing the challenge of showing that its disaster recovery strategies are in order.

Poulos, who is also chairman of the SIA's Business Continuity Planning Committee, said Credit Suisse's systems worked smoothly during Nasdaq's tests. But its disaster recovery plan still has some kinks that need to be worked out, he added. Poulos wouldn't disclose further details but noted that more pressure is being put on firms to increase the resiliency of their systems beyond the capabilities they have already built.

Large financial services firms also face an April 2006 deadline for meeting new federal guidelines on increased resiliency for trade clearance and settlement activities. The SEC, the Federal Reserve Board and the U.S. Treasury Department's Office of the Comptroller of the Currency set the guidelines in a white paper last spring.

Complying with the guidelines "means having people in place at another location that's not in a commutable distance to the primary site," Poulos said. Many firms may move their backup data centers to other parts of the New York metropolitan area or to more remote locations, he added.

Howard Sprow, director of business continuity planning at the SIA, said the new rules shouldn't have a big impact on large firms that have been improving their disaster recovery architectures since the Sept. 11, 2001, terrorist attacks. The NASD and NYSE are simply looking to "formalize the process," he said.

"All the firms have robust backup sites that are some distance from their primary sites," Sprow noted. "But they are looking at ways to add additional sites or to increase the separation." **46725**

Nasdaq Is Ready For Disaster

- The stock exchange's two data centers **are located 300 miles apart** – one in Connecticut, the other in Maryland.
- The systems and IT infrastructure at the backup facility **are equal to or at near parity** with the ones at the main data center.
- Dual utility power feeds **are provided to both data centers** to protect against outages.
- Both facilities **are in rural office parks,** so Nasdaq can maintain a combined total of 85,000 gallons of diesel fuel on-site – enough to run generators for more than a week.

SOURCE: NASDAQ STOCK MARKET INC., NEW YORK

PASSING THE TEST

Q&A: CIO Steve Randich discusses Nasdaq's disaster recovery tests:
QuickLink 46752
www.computerworld.com

MARYFRAN JOHNSON

Compliance Bonanzas

WHEN WAS THE last time you read about a $40,000 retention bonus for someone with a hot skill in IT? I'll bet it was sometime around the turn of the century, when Y2k fears had CEOs wringing their hands and CFOs signing checks for whatever IT asked for.

MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com

Today, it's a different story with some eerie echoes. The latest salary bonanzas aren't tied to arcane skills in Cobol programming but to IT auditing experience applicable to the slew of regulatory compliance issues companies are facing. In our front-page story last week ("IT Auditors Coveted, Hard to Find," QuickLink 46577), we wrote about one enterprise risk manager being courted with generous raises, bonuses and stock options from a pair of Fortune 250 companies anxious to get him on staff as the year-end Sarbanes-Oxley compliance deadline looms.

The big accounting firms are also hiring briskly to beef up their in-house expertise in everything from Sarbanes-Oxley and HIPAA to the Patriot Act, the Gramm-Leach-Bliley Act and the European Union's directive on privacy protection. Ernst & Young, for example, has expanded its IT risk practice by 30% in the past 10 months and has 200 openings to fill by the end of next month.

A lot of people I've talked with lately believe — or maybe *hope* — that all these regulatory mandates will turn out to be another kind of bonanza for IT. That they'll force companies to clean out their data closets and reorganize business processes. That they'll usher in new project disciplines, forge stronger IT-business partnerships and strengthen relationships with customers by better protecting their privacy. And, of course, that they'll elevate security and privacy protections to new heights of corporate support.

Those are very seductive notions, and I'd love to believe them. But I also hear the distant ring of the déjà vu bell. An awful lot of ill-conceived ERP projects were launched under the banner of Y2k rescues, and those later came back to bite IT with outrageous cost overruns, disappointing results and a wider-than-ever credibility gap with senior management. The risk of repeating history is a significant one, and there's a lot more at stake than the reputation of the IT organization.

Last week, I moderated a panel discussion at UCLA on regulatory compliance and corporate security, with a speaker lineup that included chief security officers and privacy and legal experts. Attorney Peter Adler, a partner at Washington-based Foley & Lardner, cautioned the audience about creating silos of regulatory compliance expertise — for example, having a set of HIPAA experts in HR and a set of Sarbanes-Oxley specialists in the finance department. He advocated a unified approach to dealing with privacy laws and financial disclosure mandates, many of which have common elements and similar requirements.

At the end of our discussion, I asked the assembled experts for their single best piece of advice for IT managers dealing with the regulatory storm. "Think long and hard about who gets access to your data," one advised. "Get serious about federated identity management systems," said another. "You can never do enough employee training," one stressed.

All agreed that regulatory mandates are driving renewed urgency into IT security practices and raising awareness of privacy protection obligations for both the public and private sectors. Security risks will keep growing, new laws will keep piling responsibilities on IT, and the audit cycles will keep on coming.

If there are indeed salary bonanzas coming with all this, IT will earn each and every one of them. **46713**

PIMM FOX

Pushing IT With the Governator

WHAT HAS YOUR governor done for you lately?

I'm talking about tax credits, grant money, streamlined bureaucracy, maybe some personal attention.

If your state and local politicians aren't trying to help your IT business, they need to take some lessons from the Governator. California Gov. Arnold Schwarzenegger has been pressing the flesh thousands of miles from home as part of his effort to lure IT business to the Golden State.

In Schwarzenegger's first official trip overseas, he flew to Israel for 24 hours and bagged almost 1,000 new tech jobs for the state, while making headlines as someone who will do what it takes to encourage IT firms to relocate business to the shores of the Pacific.

At the top of Schwarzenegger's tally for his day trip to Israel was Sanrad Inc., a Tel Aviv-based IP storage networking firm, which plans to put its worldwide headquarters in Alameda, Calif., bringing 300 jobs to the new facility.

Other deals announced by Schwarzenegger include an expansion of a joint venture between Yokneam, Israel-based Arad Technologies and Sacramento-based USCL Corp. to build intelligent utility meters. Yahud, Israel-based Magal Security Systems will increase production of monitors designed to protect buildings, airports and transport facilities at its Fremont, Calif., location. Netline Communications Technologies in Tel Aviv will design and build devices to jam remote activation of bombs as part of a joint venture with Santa Cruz, Calif.-based Life Safety Systems. And ForeScout Technologies will add to its operations in San Mateo, Calif., where it is working on preventing Internet hacking.

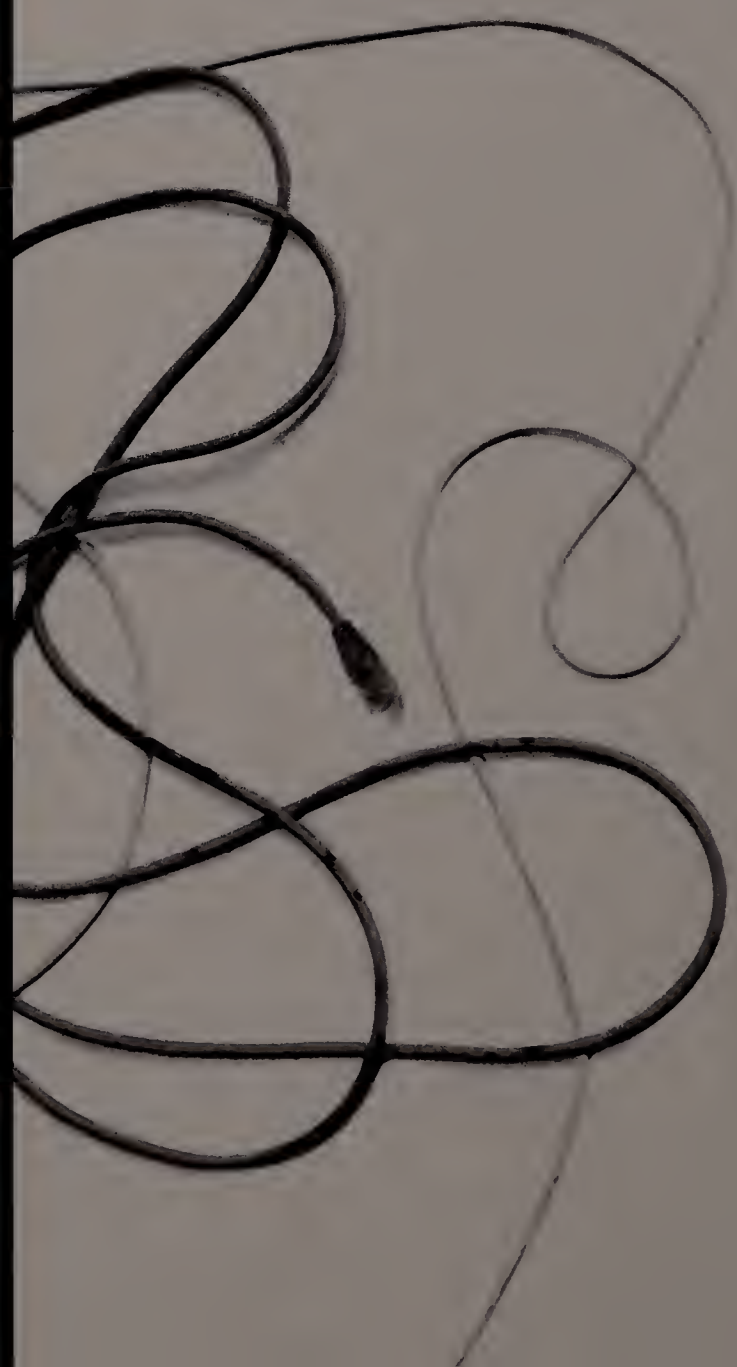
Not bad for 24 hours' work.

THE IDEAL I.T. INFRASTRUCTURE: QUICKLY ADAPTABLE, SUPREMELY FLEXIBLE, NOW ACHIEVABLE.

Feeling a bit skeptical these days? It's perfectly understandable. After all, integrating those "best of breed" applications into your IT infrastructure turned out to be not nearly as fast or foolproof as advertised. And capturing their full value, as well as the full value of your entire infrastructure, probably still seems like a distant goal.

Given the circumstances, you did everything you could. After all, you were handed the technological equivalent of a drawerful of mismatched socks – very expensive socks.

But now you can do more – actually, quite a lot more. Read on and find out how.



THE ACCELERATION OF EVOLUTION

Remember when it was okay for businesses to evolve slowly?

Of course you don't. Success has always been about speed: the speed of innovation, the speed of implementation. And it all just keeps getting faster.

Today, markets, customers and competitors change seemingly overnight. And so must your business processes and strategies.

Unfortunately, this rapid pace of change has exposed a fundamental weakness at many businesses: an IT infrastructure that can't evolve quickly enough to take advantage of opportunities or respond to challenges.

There are two reasons for the bottleneck. The first is complexity. By the time a new business process or strategy can be designed,

built, implemented and executed technologically, the window of opportunity has usually closed.

The second is monetary. Currently, 80% of the average IT budget is earmarked for operation and consolidation. Very little is left for innovation. *(Source: SoundView Technology Group, 2003.)*

Can your business afford to concede opportunities to more agile competitors? Of course not.

Your task is clear: to enable your company to compete and win, you have to reduce the complexity and cost of your IT infrastructure, and reallocate more of your resources toward innovation.

Fortunately, there's a technology platform that will enable you to fulfill that task. It's called SAP NetWeaver.™

But before we take a closer look at what makes SAP NetWeaver so useful, let's explore what contributes to a high, and skewed, overall TCO.

THE COMPLETE TCO EQUATION

The typical IT infrastructure is a jumble of disparate technologies (including portals, business intelligence, knowledge management, etc.) and applications (both legacy and best of breed).

Whether you're integrating your applications into a portal or a business intelligence solution, or connecting your apps with the integration broker, it's costing you time, money, and unnecessary aggravation.

To help illustrate just how much money, we're introducing a new, more complete way of identifying costs. It's called The Complete TCO Equation.

COMPLETE TCO =
the cost of all your technologie
+ the cost of all your applicatio
+ the cost of integrating all you

From this point of view, it's no surprise that integration has been likened to a sinkhole, draining money from innovation and preventing your business processes and strategies from evolving as quickly as they need to.

But what if you could transform integration into a far simpler, less expensive, less painful process – no matter whose technology or applications you're integrating? Now you can – with SAP NetWeaver.

SAP NETWEAVER: ELIMINATING HURDLES, ENABLING IDEAS

Imagine being able to quickly and efficiently align IT with your business's needs, to drive new strategies for growth while minimizing risk and cost, to compose new business processes on top of existing systems.

s, including their integration into a single platform
ns, including their integration into an end-to-end process
r technologies with all your applications

It's all possible with SAP NetWeaver.

SAP NetWeaver is an open, standards-based integration and application platform that greatly reduces the complexities of integration. Its components include a portal, an application server, business intelligence, and integration and data consolidation technologies.

With SAP NetWeaver, you capture the full value of the technology you already have in place, and pave the way for future technology – SAP or non-SAP.

The result: an opportunity to achieve significantly greater flexibility at a far lower, sustainable TCO.

Bottlenecks disappear. Timetables are met. Business goals are achieved. Your entire IT architecture is elevated from an enabler of work into an enabler of change.

For current SAP customers, there's even more of an advantage: SAP NetWeaver comes pre-integrated for SAP® solutions, which greatly reduces the costs associated with systems integration.

But SAP customer or not, there's one thing that should be clear: of all the software providers in business today, SAP is uniquely positioned to deliver integrated technologies and technologies integrated with applications.

If that concept piques your interest, we suggest you visit **sap.com/netweaver** where, we hope, your curiosity will be integrated with our solutions.

WONDERING WHAT SAP NETWEAVER CAN DO FOR YOU? SEE WHAT IT DID FOR THEM.

The success of Check Point Software Technologies Ltd., the world's leading developer of firewall software, was founded on innovative Web service applications, which it used to support a global, third-party channel that delivered one hundred percent of the company's sales.

But success had a price: its central IT department was spending too much time maintaining the large number of applications. What's more, their IT infrastructure was a dizzying mix of different application servers, development tools, and open source components.

Using SAP NetWeaver – and, more specifically, SAP Enterprise Portal and SAP Web Application Server – Check Point was able to immediately consolidate its Web services infrastructure, doubling central IT's application development productivity. Within a year and a half, Check Point saw an ROI of 586% based on IT productivity increases and swifter rollouts. The consolidation also allowed Check Point to reduce the number of servers running their Web service applications from 11 to 3. Over five years, Check Point expects a 23% reduction in TCO.

Carl Zeiss, a leading optical component manufacturer with 14,000 employees, needed to find a way to evolve more quickly. Consolidation among optical chains was creating new, ever-larger customers, resulting in management scenarios of greater complexity and delays in order processing.

Using SAP NetWeaver, Carl Zeiss was able to integrate multiple systems around the needs of their customers, developing individual logistics strategies for each chain. As a result, custom orders and changes are now accommodated more easily. And the time it takes to integrate a new customer into the system has dramatically decreased.

Besides gaining more-satisfied customers, Carl Zeiss reduced the average cost per integration interface by 50%.

Sasol, a holding company for nearly fifty separate chemical and fuel businesses around the world, had consolidated all of its core operational software around SAP. However, it still faced the challenge of properly managing a widely dispersed, and culturally diverse, workforce.

Using SAP NetWeaver, Sasol was able to create an enterprise-wide information portal for collaboration and communications between employees of different divisions, greatly increasing the company's ability to meet strategic corporate goals. The portal also served to coordinate business processes for HR, production planning, and production work flow across Sasol's various business units.

The financial results were impressive, with an ROI over five years, after tax, of 453%. But even more importantly, thanks to SAP NetWeaver, Sasol was able to become a truly global player.

WANT TO KNOW MORE?
VISIT [illegible]

[illegible]

Sure, not all governors have the star power or the love of IT that Schwarzenegger has. (In *The Terminator*, the computer code audiences see through Schwarzenegger's eyes is a mixture of Cobol and assembly code for the Apple II computer.) And maybe you're not into the political scene. But you've got to push pols to work for you.

If you're not hobnobbing with elected officials who can blast through red tape to help you increase productivity, you're missing out. If you're ignoring the meet-and-greet sessions with local party hacks who can insert favorable rules into state legislation, then you're not firing on all cylinders.

Does this sound cynical and manipulative? It isn't.

Running an IT business is no easy task. Competitors are trying to beat you on price, customers demand ever-higher-quality service at lower costs, and attracting talented and loyal workers is time-consuming and expensive.

Big corporations use the tax code to their advantage and aren't shy about asking for government handouts to keep business humming.

Think of all the things government could do to help IT at the operational level, from hiring to research grants.

And who knows — maybe you could get some free acting lessons. **46652**

DAN GILLMOR

A Road Warrior's Inventory

I'VE BEEN a fairly hard-core road warrior for the past few years. Users like me are a challenge for IT departments, because we're trying to replicate the best parts of our offices in one carry-on bag.

My own gadget bag is a continually evolving set of tools, the kind that make it possible to be connected and up to speed pretty much anywhere I happen to be. Your mileage may vary, but these tools work for me.

I start with an aluminum Macintosh G4 PowerBook with a DC charger that works in the car and on airplanes, in addition to the regular wall charger.

It worries me how much of my professional existence is in this thing. That's why I also carry an 80GB FireLite device from SmartDisk for routine backups, including a daily backup of essential files such as chapter drafts of a book I'm nearly finished writing. I lost a bunch of important e-mails in the middle of 2003 and decided that it wouldn't happen again. I keep the disk drive in a separate place in my hotel room.

Laptops are hardier than ever, but they're not indestructible. On planes, I carry my Mac "double-wrapped." I put the computer in a padded, ballistic-nylon "sleevecase" from WaterField Designs. The sleevecase then goes into a carry-on bag that adds further protection.

Once I get to my hotel room, I pull out the sleevecase and attach a padded shoulder strap and piggyback bag that holds my power supply as well as a notebook (analog), a digital camera, a couple of cables and other small items. That way I can leave the big bag in the hotel instead of schlepping it around.

DAN GILLMOR is technology columnist at the *San Jose Mercury News*. Contact him at **dgillmor@sjmercury.com.**

I'm a convert to the phone/PDA routine. My PalmOne Treo 600 is the best combo device I've seen so far. I've been loading a bunch of third-party software onto it, including a Freecell game for emergency boredom cures.

To carry the Treo, I use a padded camera pouch that attaches to my belt. I also have a retractable sync and cable/charger thingy, which saves lots of room and is vastly more convenient.

I put a 512MB memory card into the Treo, found a third-party MP3 player and now listen to music on the Treo. It's not as nice as Apple's iPod, but it's one less thing to carry.

One vital road-warrior tool is a pair of noise-canceling headphones, which make a huge difference in reducing fatigue from long plane rides. At the moment, I'm using the Sennheiser PXC250 model. I'm eyeing the new Bose set, but it's twice as expensive.

Then there's an assortment of other cables, including a retractable phone, Ethernet and FireWire line. I love the convenience of the ones that wind up inside a spindle, helping me avoid cord spaghetti. And, of course, I have extra batteries, a USB adapter for various device memory cards to download pictures and transfer files, and several notebooks, pens, tissues, antibacterial hand wipes, decongestant nose spray (essential if you fly with a cold) and other basic remedies and vitamins.

One crucial addition: a paperback book. I never know when I might be waiting in line (the immigration line at Tokyo Narita took an hour last month), and it's always nice to have something to read. Not all of life is digital. **46598**

WANT OUR OPINION?

More columnists and links to archives of previous columns are on our Web site:
www.computerworld.com/columns

READERS' LETTERS

HP Betrays Users

THE MPEix operating system is one of the best ever written ["HP Responds to Pressure From e3000 Users," QuickLink 46280]. Although it isn't an open platform, most businesses don't want their primary systems to be that open. We want it to be secure and to do the core business without interruptions.

I've been an HP e3000 user, programmer and manager for 20-plus years. I saw the mistakes made by Hewlett-Packard during late 1980s with the HP 3000. Now third-party vendors are price-gouging e3000 customers, and HP is turning its back on loyal customers. The grief, problems and expense I've experienced during this dumping of the HP e3000 have left a bad taste in my mouth. I'm recommending that the company I work for not purchase any HP equipment in the future. The "HP Way" has gone astray!

Bryan Goodwin
Senior software engineer, Springfield, Ore.

Open-Source Keeps Mainframes Alive

MAINFRAMES are far from "going away" [IT Vets Reminisce on IBM 360's 40th Anniversary," QuickLink 46119], as Marc Veen, operations support at Alticor Inc., put it. It's too bad Alticor chose to discard the very system that could enable its move to open systems. Over the last several years, IBM has made tremendous progress in adding open-systems technology to its mainframe product line. Whether by accident or intent, IBM has continued the root definition of the original 360 philosophy of using one system for all needs, by including support for Linux and Java.

Bruce A. McKnight
zGroup principal, Boundless Flight Inc., Cleveland, Bruce@BoundlessFlight.com

Many Tools Need Real-Time Abilities

WHILE reservations systems can benefit from being real time, there are other systems that have always needed that capability and tried to provide it ["Almost Real Time," QuickLink 46191]. The air traffic control systems are one type. State and local police departments' warrant and "wanted" systems are another. No one wants to pay a fine or clear his case only to be arrested two minutes later on the same warrant. Our military systems and NASA have had similar requirements. Many systems need immediate updating if they are to deliver the value everyone desires from them. I suspect that historically, government IT systems have been as interested in real-time systems as commercial enterprises, and perhaps even more interested in them.

Gene Lauver
Senior programmer, St. Louis

Calculating Risk

REGARDING the article "Big Four Accounting Firms Join in Cyber-Risk Effort" [QuickLink 45597], I have to say that something similar was done already in the Open Source Security Testing Methodology Manual (*www.osstmm.org*). This methodology is a true open-source initiative that has over 1,000 volunteers worldwide, including members of the Big Four. Last month, we released the Risk Assessment Values at the ISESTORM event in Barcelona and again at symposiums in France, Spain and Italy. The RAVs provide quantitative risk assessment based on security tests and quantify risk in two parts: justified risk, which is inherent risk in doing business, and actual risk, which is the current state of the network regarding vulnerabilities.

Together with results from best-effort practices like ISO 17799, BS 7799, OCTAVE and other risk assessment methodologies, the security management and operations approach can be combined with the OSSTMM for very accurate risk assessment calculations. Additionally, the results can best be analyzed by a professional security analyst who may make manual verifications prior to processing and quantifying the risks. This prevents the problem of "trusting the tools," which has led to many false security assumptions and poor risk analysis.

Pete Herzog
Managing director, Institute for Security and Open Methodologies, Barcelona, Spain, pete.herzog@isecom.org

COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. E-mail: letters@computerworld.com. Include an address and phone number for immediate verification.

For more letters on these and other topics, go to
www.computerworld.com/letters

TIDY UP.

Meet the IBM eServer™ i5™ system — designed to simplify your infrastructure. It's the first IBM server with POWER5™ technology. And the latest member of the IBM eServer iSeries™ family. What's more, it can simultaneously run four operating systems, dynamically allocating resources needed for each application and operating system[1]. On demand. iSeries technology can also help reduce the number of servers you manage by as much as 85%. We invite you to learn more about how to make your business more efficient. Just visit **ibm.com**/eserver/consolidate

5 reasons why IBM eServer i5 systems with Power Architecture™ technology can simplify your infrastructure.

Runs four operating systems simultaneously.	*Advanced virtualization technologies.*	*Capacity on demand.*	*POWER5 processor-based 64-bit technology.*	*Integrated for easy management.*

IBM®

@server®

The IBM eServer i5 system.
Consolidate. Integrate. Celebrate.

[1]IXA or IXS required to run Windows. Customers must license O/Ss separately. IBM, the e-business logo, eServer, the eServer logo, iSeries, i5, Power Architecture and POWER5 are trademarks or registered trademarks of International Business Machines Corporation in the United States and/or other countries. Other company, product and service names may be trademarks or service marks of others. ©2004 IBM Corporation. All rights reserved.

ROBUST OBJECTS AND ROBUST SQL

GET DATA IN THE BLINK OF AN EYE

For your next generation of applications, move to the next generation of database technology.

Caché is the *post-relational* database that combines high-performance SQL for faster queries and an advanced object database for rapidly storing and accessing objects. With Caché, no mapping is required between object and relational views of data. That means huge savings in both development and processing time.

Applications built on Caché are massively scalable and lightning-fast. Plus, they require minimal or no database administration.

More than just a database system, Caché incorporates a powerful Web application development environment that dramatically reduces the time to build and modify applications.

The reliability of Caché is proven every day in "life-or-death" applications at thousands of the world's largest hospitals. Caché is so reliable, it's the leading database in healthcare – and it powers enterprise applications in financial services, government and many other sectors.

We are InterSystems, a specialist in data management technology for twenty-five years. We provide 24x7 support to four million users in 88 countries. Caché is available for Windows, OpenVMS, Linux and major UNIX platforms – and it is deployed on systems ranging from two to over 10,000 simultaneous users.

InterSystems
CACHÉ™
Make Applications Faster

Free White Paper

Read or request a copy of the Baroudi/Bloor white paper "The Failure of Relational Database, The rise of Object Technology and the Need for the Hybrid Database." at www.InterSystems.com/cworld

© 2004 InterSystems Corporation. All rights reserved. InterSystems Caché is a registered trademark of InterSystems Corporation. 7-03

FUTURE WATCH

Computational Origami

Some pioneering researchers in this new field believe the math behind paper folding could help decode the "bad" protein folds thought to cause diseases such as Alzheimer's and mad cow. **Page 26**

SECURITY MANAGER'S JOURNAL

Security Policy a Paper Tiger

Despite explicit policies in Mathias Thurman's company, problems with rogue access points and incident-response procedures haven't abated. **Page 28**

OPINION

Living Down to a Low Standard

Nicholas Petreley says the latest version of the GNOME graphical desktop environment continues an unfortunate trend in which each new version of the software is worse than the last. **Page 30**

EXTENDED ENFORCEMENT

Companies are using compliance tools to ensure that security policies are followed at network endpoints. BY JAIKUMAR VIJAYAN

LIKE MANY companies, for several years Tripos Inc. has required employees who work remotely to install a firewall and antivirus software on the laptop or desktop PCs they use to connect to the corporate network via VPN.

But it wasn't until about a year ago that the St. Louis-based drug research company adopted measures to enforce end-user compliance with those requirements.

Technology from InfoExpress Inc. in Mountain View, Calif., helps Tripos monitor and audit all remote end-user systems to ensure that they have active firewalls and updated antivirus software. Systems that don't have both are automatically shut out of the Tripos network.

Tripos is one of a growing number of companies turning to monitoring and auditing technologies such as those from InfoExpress to enforce policy compliance at vulnerable network endpoints. The tools, many of which require software agents to be installed on client devices, inspect systems for active firewalls, the latest antivirus signatures, secure configuration settings and unauthorized privilege escalation.

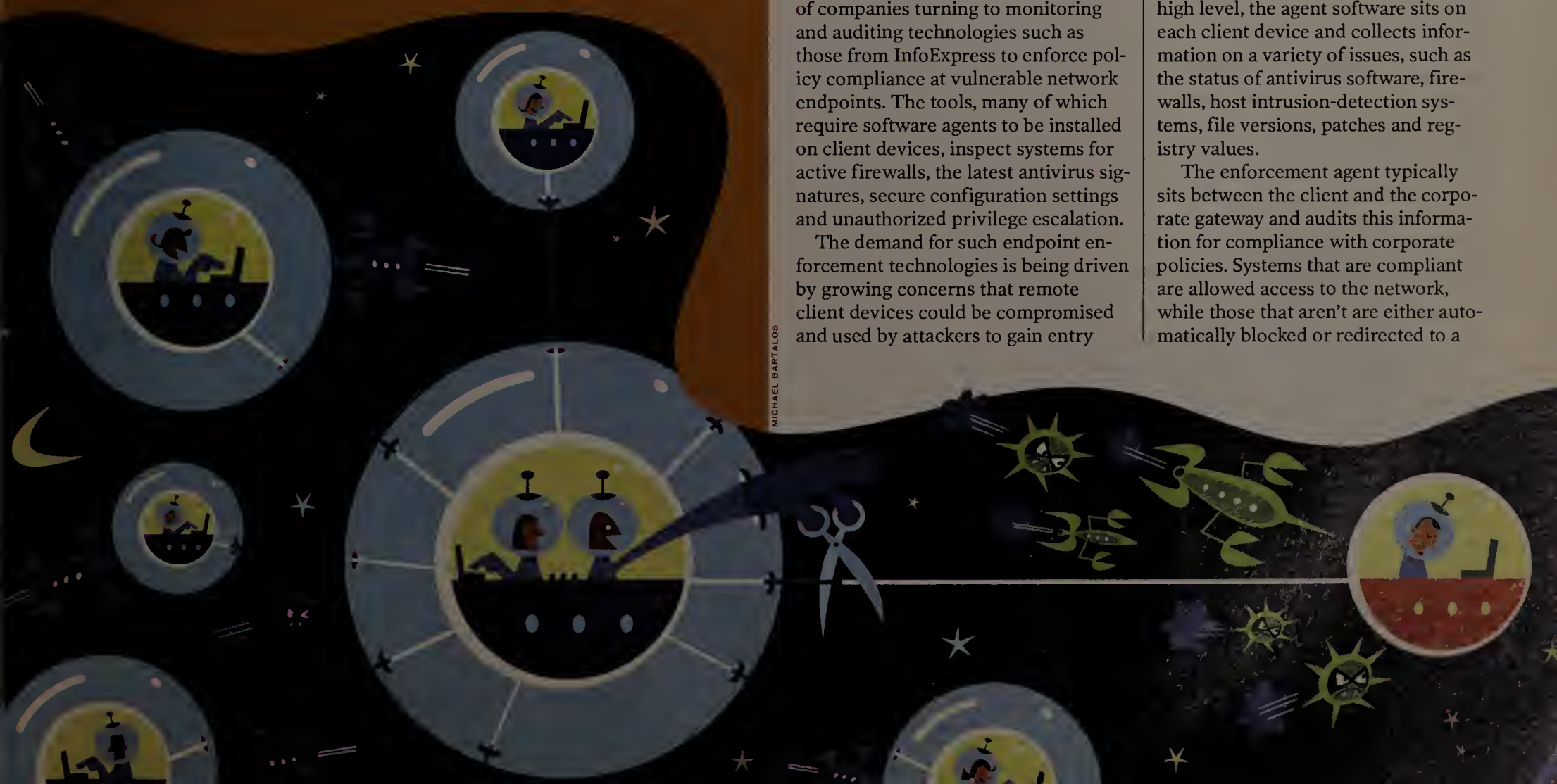
The demand for such endpoint enforcement technologies is being driven by growing concerns that remote client devices could be compromised and used by attackers to gain entry into core production systems, says Jerry Wintrode, senior network architect at Tripos. For instance, this month's Sasser and last year's Blaster and Slammer worms spread primarily via infected client systems.

Privacy concerns and regulatory issues are also creating a need for endpoint compliance.

"Until you have something that absolutely enforces policies, you may as well admit that you have a back door into your network," Wintrode says. "You could make all the policies you wanted to and educate your employees until they are all security experts. But someone is still going to screw up."

For the most part, endpoint compliance technologies include agent software that's installed on end-user systems, an enforcement component and a policy management server tool. At a high level, the agent software sits on each client device and collects information on a variety of issues, such as the status of antivirus software, firewalls, host intrusion-detection systems, file versions, patches and registry values.

The enforcement agent typically sits between the client and the corporate gateway and audits this information for compliance with corporate policies. Systems that are compliant are allowed access to the network, while those that aren't are either automatically blocked or redirected to a



MICHAEL BARTALOS

quarantine site for fixes. In some cases, the tools can be used to bring an endpoint device into compliance, by turning on a firewall or downloading the latest antivirus signatures, for instance.

In other cases, the enforcement agent can send a message back to the user indicating the necessary remedial action, or it can provide restricted access to network resources until the system is brought into compliance.

Meanwhile, the policy management server defines and manages the policies that are enforced.

Not all endpoint technologies need client-side agents. Some are server-based products that probe client devices for compliance when the user logs onto the network. Costs can range from $50 to $150 per user, depending on the level of enforcement.

Target: Remote Workers

Besides InfoExpress, other vendors in the field include Zone Labs Inc., Sygate Inc., Symantec Corp., Network Associates Inc. and Trend Micro Inc. Networking giant Cisco Systems Inc. entered the fray last fall when it launched a major endpoint compliance initiative called the Network Admission Control program (see box, right).

Almost all the enforcement software that's deployed is targeted at mobile and remotely connected systems, says Phil Schacter, an analyst at Midvale, Utah-based Burton Group.

"One of the biggest factors has been the endless onslaught of viruses and worms that potentially can be transmitted through open ports on any network-connected machine," says James Demos, a security administrator at a major publishing house in New York.

"The pace picked up last year and is unrelenting at this point," he adds.

Demos, who asked that his company not be named, is planning to deploy ZoneAlarm from San Francisco-based personal firewall vendor Zone Labs.

The centrally managed security suite will allow Demos to enforce policies related to the use of firewalls, antivirus software and configuration settings for all VPN-connected corporate users. Unlike the company's existing personal firewall software, ZoneAlarm, which acts as a firewall in addition to monitoring compliance, can't be disabled by users who don't have the administrative privilege to make system changes. In the event that someone does find a way to do so, a log of the change is made.

"Once the software is deployed, it should be running. If it's not, the user won't get in," Demos says. The software can either block the user from the system automatically or alert administrators of a problem and leave enforcement to them.

For some companies, such software does more than just protect against worms and viruses. For example, Terra Nova Trading LLC uses a combination of in-house tools and third-party software to monitor client systems for illegal chat and peer-to-peer software in addition to handling basic security functions, says Kevin Ott, vice president of technology at the Chicago-based financial services company.

The third-party desktop management software, which Ott declines to name, allows Terra Nova to scour employee desktops for illegal applications and shut them down before they're launched. In addition to searching for specific file names and extensions, the software registers any new or unusual processes running on a user's system to prevent users from circumventing policies by simply changing file names.

"We ran into some technically savvy users who figured they could rename the executable. We were able to identify them" and shut down the software, Ott says.

Sara Lee Coffee & Tea North America, a Harrison, N.Y.-based division of Sara Lee/DE, is using software from San Diego-based Websense Inc. not only to detect and automatically shut down any peer-to-peer or chat application but also to enforce quotas on the amount of time employees can spend on commercial Web sites during office hours. The idea is to give users the ability to browse commercial Web sites, but only for specific amounts of time, says Steven Annese, IT manager at the company.

Such technologies can also help companies uncover security risks that might otherwise be missed, says Sygate user Jim Kirby, a network engineer at Wells' Dairy Inc. in Le Mars, Iowa.

It was only after the company installed an enforcement component to its endpoint defenses that it discovered that firewalls on end-user devices were frequently being switched off — sometimes for unknown reasons, and sometimes because a user had reimaged the system, Kirby says.

Looking Closer to Home

The increased focus on remote endpoints is driving a trend toward the same kind of enforcement on locally connected machines as well, says Frederick Felman, a vice president at Zone Labs. In such cases, the enforcement agent sits between the LAN switch and an authorization, accounting and authentication server. It audits end-user systems for policy compliance before network access is granted, Felman says.

"Most of our sales in the last two quarters have come from such users," says Felman.

But if you adopt measures to enforce policy compliance, you also have to have good mechanisms for remediation, says Stacey Lum, president of InfoExpress. Users who get locked out of a corporate network for failure to comply need to have a place to go where they can quickly bring their systems into compliance, or have a procedure for doing so themselves, Lum says.

For instance, Tripos lets remote users connect directly to the Internet to download the patches and fixes they need in order to log onto the corporate VPN. The company's InfoExpress software also lets Tripos push patches to remote users who have high-speed connections.

Moreover, failure to properly explain the steps being taken to enforce endpoint security can result in a lot of calls to the help desk, says Schacter.

"When we first turned on the enforcement, it wasn't perfect," Kirby says. "There was a little bit of an uproar over it."

The key is to have policies that give users reasonable ways to fix problems, Schacter says.

"You need to be able to get the fix down to the desktop in some reasonable series of steps so that the user can try again and be let in," Schacter says. "If you make things too difficult for the end user, there is going to be so much push-back that you may not be able to deploy these technologies."

46467

CISCO'S GOT A NAC

CISCO is using its position as the preeminent supplier of corporate network gear to enter the market for endpoint security enforcement technologies.

Under the Network Admission Control program it launched last fall, Cisco is working with three security vendors to develop products that will let companies deny, permit, quarantine or restrict admission to networks, based on an end user's security status.

Cisco's NAC technology is made up of multiple components, including the following:

- A Cisco trust agent that sits on endpoint systems and collects information on client security, such as the status of antivirus signatures and patch levels.
- Network access devices that enforce admission control based on the information provided to them by the trust agent.
- A policy server that instructs network access devices on the appropriate policies that need to be applied.

As part of its effort, Cisco has licensed its trust agent technology to its NAC partners: Symantec, Network Associates and Trend Micro. The three vendors will integrate the Cisco software into their antivirus products. In addition, Cisco will integrate its trust agent with its own Security Agent technology for checking the status of operating system patches.

Cisco's NAC technology, which is due to ship by June, will allow companies to enforce endpoint security compliance without affecting performance for end users, claims Jeff Buton, a senior director of technology marketing at the company.

Cisco's widespread presence in corporate networks makes its NAC effort worth watching, says Phil Schacter, an analyst at Burton Group. "Cisco has woken up the market to the value of such technologies in a big way," he says.

But the limited number of vendors that Cisco is currently partnering with has raised some concerns about it delivering a "closed solution" to its customer base, Schacter says. For a technology such as NAC to be truly successful, a lot depends on the ease with which users are able to integrate it with their existing security technologies, he says.

– Jaikumar Vijayan

PRODUCTS AND VENDORS

For a listing of vendors who offer endpoint compliance software, visit our Web site:

QuickLink 46496
www.computerworld.com

Network Friendly.

"Kyocera's advanced technology makes network administration, updating, and training a snap."

Common driver, common interface makes business simple and increases productivity. And NetView™ software gives you one tool to manage everything. If you're looking for the best in class printers, copiers, MFPs, and network solutions, look to Kyocera for an exceptional solution.

MIS Director
Midwest

kyoceramita.com/us

Network Friendly because:

- Rated #1 in Performance/Reliability*
- Integrated Wireless Solutions
- Extremely Low Cost of Ownership
- Cartridge Free Drum Design

People Friendly.

The simple idea that's making it big everywhere.

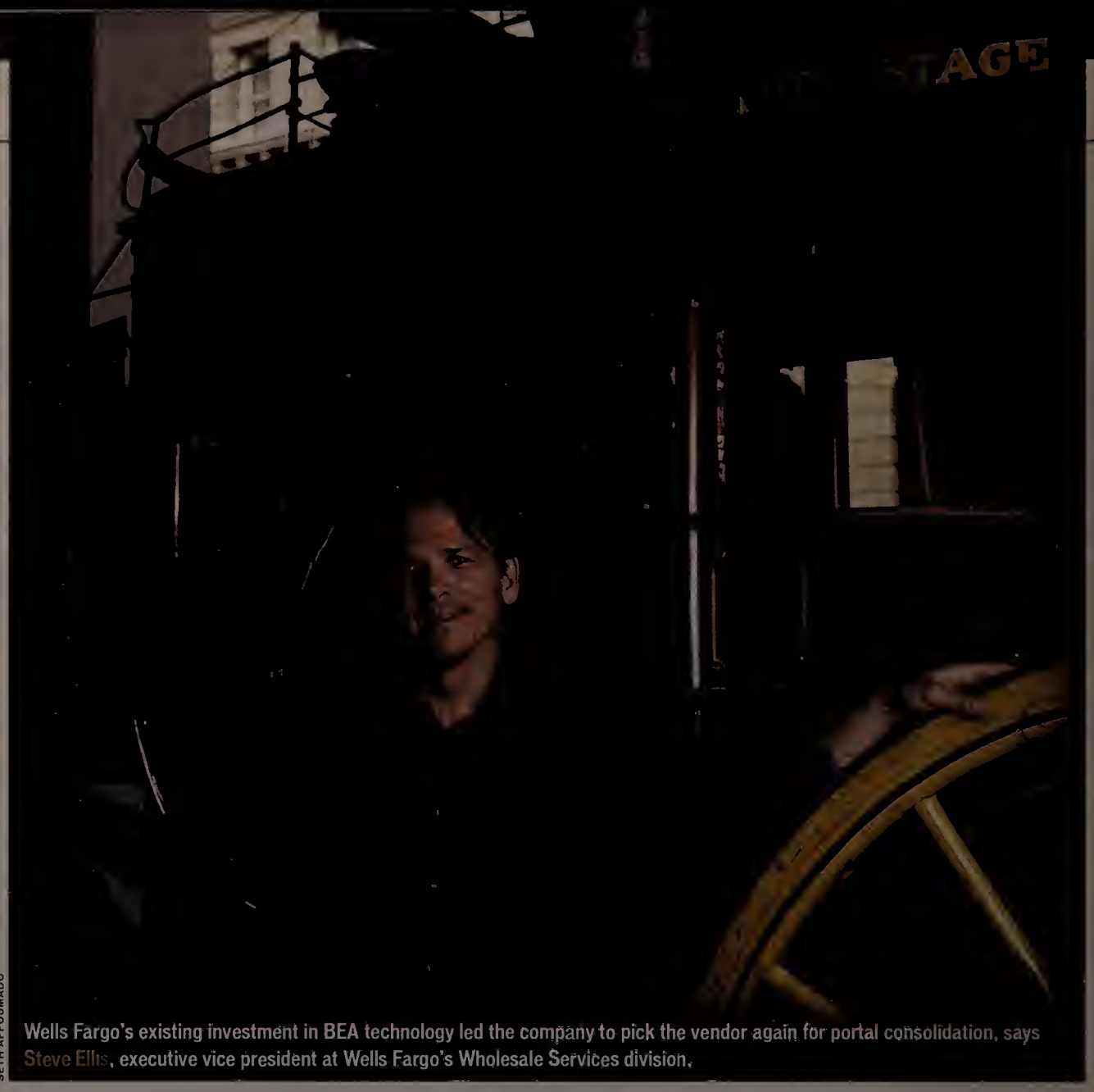
KYOCERA

Document Solutions

KYOCERA MITA CORPORATION KYOCERA MITA AMERICA, INC., a group company of Kyocera Corporation
©2004 KYOCERA MITA CORPORATION AND KYOCERA MITA AMERICA, INC., "PEOPLE FRIENDLY", THE KYOCERA "SMILE" AND THE KYOCERA LOGO ARE TRADEMARKS OF KYOCERA. *Source: 2003 Industry Analysts, Inc.

CONQUERING Portal Chaos

Companies are using consolidation technologies to stop expensive and risky portal proliferation. By Steve Ulfelder



SETH AFFOUMADO

Wells Fargo's existing investment in BEA technology led the company to pick the vendor again for portal consolidation, says Steve Ellis, executive vice president at Wells Fargo's Wholesale Services division.

DOES EVERY SINGLE EMPLOYEE HAVE HIS OWN PORTAL? That's how it sometimes appears to frustrated IT managers seeking to streamline their infrastructures.

In the past several years, many enterprises have seen portals — or tiny intranet sites that users think of as portals — spring up like dandelions. Frequently created by an enthusiastic power user with little or no IT oversight, portals may belong to a satellite office, a department or a functional group of employees (such as salespeople). They may be little more than a welcome screen and a half-dozen links, or they may be true transactional sites used by customers and trading partners.

Today, businesses are waking up to the fact that portal proliferation is a potentially expensive mess at best and a disaster waiting to happen at worst. As a Gartner Inc. report in October 2003 put it, "Many enterprises — instead of easily reaping rewards from their portal implementations — find themselves dealing with a jungle of multiple portals that compete for the same resources and audiences."

The resulting expense is difficult to track, because small portals are scattered across geographic regions and lines of business. "You want to save money eventually [by consolidating portals], sure," says Steve Ellis, executive vice president at Wells Fargo & Co.'s Wholesale Services division. "But it's almost as important just to understand where that part of your spend is going."

Tracking content on unauthorized and unsupervised portals is essentially impossible, a circumstance that sets the scene for disaster, given today's strict accountability regulations. Laws such as the Sarbanes-Oxley Act require enterprises to monitor and control all outward-facing communication.

Organizations seeking to consolidate portals are soon confronted with a number of thorny technology issues. "Each [existing] portal has different tool sets, languages and approaches to content and applications," says Frank Torbey, a consultant at Tandem-Seven Inc., a Plymouth, Mass.-based firm that helps large businesses build portals. Log-on and user-identity features may also be handled differently, he adds.

Today, businesses typically have separate portals for employees in general, the sales force, customer service and perhaps suppliers. Each portal must access data from a range of applications (human resources, payroll, CRM, ERP, supply chain management, accounting and purchasing) and then add a presentation layer. When a company considers consolidation, IT's challenge is to rationalize existing portals into one system that addresses the data, functionality, personalization and authentication needs of all users.

The good news for IT managers is that there are more tools available for portal consolidation than there were a few years ago. Longtime portal specialists such as San Francisco-based Plumtree Software Inc. and Austin-based Vignette Corp. are facing competition from nearly every major vendor of enterprise software.

This widespread availability of portal software has altered the purchase decision landscape, according to Torbey. "Many of our clients started their portals with a Plumtree or a Vignette," he says. "But if that company

Connect proven mobile and wireless solutions to your enterprise strategy

Attend the content-rich conference that sees an enterprise without wires

Mobile & Wireless World

Owned & Produced by:
COMPUTERWORLD

May 24-27, 2004

JW Marriott Desert Springs Resort · Palm Desert, California

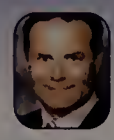
Visionary & Featured Speakers

DAN GILLMOR
Technology Columnist
San Jose Mercury News

JOSEPH FERRA
Chief Wireless Officer
Fideility Investments

FRED GRATKE
Assistant VP
Burlington Northern Santa Fe Railway

GARY BULLOCK
Network Solutions Project Manager
Allstate Insurance Company



RICK POPLE
VP of Operations
NYK Logistics

KEN PASLEY
VP
FedEx Internet Technology

ROGER GURNANI
VP & CIO
Verizon Wireless

MARINA LEVINSON
VP & CIO
palmOne

JAY STALLARD
Senior Manager
Pfizer

LINWOOD HAYES
Senior VP & CTO
Travel, Inc.

Mobile & Wireless World 2004 Sponsors: (as of 5/3/04)

Cisco Systems · Credant Technologies · hp invent · intel · iAnywhere · Intellisync · Next Level Solutions · Nokia Connecting People · PanGo Networks · Qualcomm · Senforce Technologies · Sharp · Sybase The Enterprise. Unwired.

MEDIA & ASSOCIATION SPONSORS

COMPUTERWORLD · Communications Today · Mobile Business Advisor Magazine · Mobile Enterprise · NPA · Wireless Data News

"BEST PRACTICES IN MOBILE & WIRELESS AWARDS" SPONSORS

Cisco Systems · intel

For more information, visit www.mwwusa.com/mcwt or call 1-800-883-9090

For sponsorship information, contact Leo Leger at 1-508-820-8212 or leo_leger@computerworld.com

Mobile & Wireless World

Owned & Produced by:
COMPUTERWORLD

May 24-27, 2004
JW Marriott Desert Springs Resort
Palm Desert, California

Attend Computerworld's Executive Conference on Mobile and Wireless Technologies!

Mobile and wireless technologies push the enterprise envelope every day, from customer-facing applications all the way to the factory floor. With the proliferation of mobile and wireless applications, devices and services, how can you keep your enterprise on the cutting edge? How can you find today's most promising mobile and wireless technologies? And how can you learn how other companies and industries apply the latest and greatest mobile and wireless tools?

At Mobile & Wireless World, you will:

- **Hear, discuss and witness winning mobile and wireless strategies in the enterprise**
- **Gain first-hand knowledge that can enhance your own company's mobile and wireless strategy**
- **Examine the industry's major issues and challenges**
- **See developing technologies**
- **Network with peers**
- **Meet potential partners**
- **Converge with analysts and press**
- **Take home practical tips and knowledge of technologies you can implement right away**

Visionary & Featured Speakers

Dan Gillmor
Technology Columnist
San Jose Mercury News

Dan Gillmor is technology columnist for the San Jose Mercury News, Silicon Valley's daily newspaper. He also writes a daily Web-based column for SiliconValley.com, a KnightRidder.com site that is an online affiliate of the Mercury News. His column runs in many other U.S. newspapers, and he appears regularly on radio and television. He has been consistently listed by industry publications as among the most influential journalists in his field.

Ken Pasley
VP
FedEx Internet Technology

Ken Pasley provides leadership for the FedEx Express worldwide wireless and mobile architecture. In this position, he oversees strategy, engineering, and development of wireless technology, including FedEx PowerPad, FedEx Private Network and Bluetooth implementation.

Roger Gurnani
VP & CIO
Verizon Wireless

As CIO, Roger Gurnani is responsible for the information systems portfolio development and operation of data centers and communications facilities for the nation's largest wireless voice and data network, which serves 36 million customers.

"... the only place I've been where I can meet other people responsible for the technology I'm implementing ..."
Lee Colaw
CIO
Pacific University

"... provides more information than other events ... a chance to talk with and hear from other users ... specific information I need to help me make decisions today ..."
Bob McCool
R&D Advisor
FedEx

"... I learn what the industry experts see as trends that I should consider in my future purchasing plans ..."
Mike Taylor
CIO
Todd Pacific Shipyard

For more information and to register, visit **www.m**

Learn from User Case Studies and Perspectives

GARY BULLOCK
Network Solutions Project Manager
Allstate Insurance Company

FRED GRATKE
Assistant VP
Burlington Northern Santa Fe Railway

KEN PASLEY
VP
FedEx Internet Technology

RICK POPLE
VP of Operations
NYK Logistics

JAY BRUMMETT
CTO
Odgen City Corporation

MARINA LEVINSON
VP & CIO
palmOne

JAY STALLARD
Senior Manager
Pfizer

DAN GILLMOR
Technology Columnist
San Jose Mercury News

LINWOOD HAYES
Senior VP & CTO
Travel, Inc.

ROGER GURNANI
VP &CIO
Verizon Wireless

CONFERENCE AGENDA *(subject to change)*

For details, updates, and to register visit **www.mwwusa.com/mcwt**

MONDAY, MAY 24

12:00pm	Pre-Conference Golf Outing
1:15pm	Concurrent Industry Pipelines and Technology Workshop: 1:15pm – Industry Pipelines 3:30pm – Technology Workshop
7:00pm	Welcome Reception

TUESDAY, MAY 25

7:00am	Buffet Breakfast
8:00am	Welcome and Opening Remarks
8:15am	Opening Keynote Presentation
9:00am – Noon	General Sessions
Noon	Luncheon and Special Presentation
1:30pm – 3:30pm	General Sessions
3:30pm – 5:00pm	Concurrent Breakout Sessions
5:30pm	Solutions Showcase & Expo with Buffet Dinner

WEDNESDAY, MAY 26

7:00am	Buffet Breakfast
8:00am	Opening Remarks
8:15am	Opening Keynote Presentation
9:00am – 12:15pm	General Sessions
12:15pm	Solutions Showcase & Expo with Buffet Lunch
1:30pm – 5:00pm	General Sessions
5:30pm	Gala Evening

THURSDAY, MAY 27

7:30am	Buffet Breakfast
8:30am	Analyst Updates
11:30am	Conference Concludes

See Case Study Award Winners at the Conference

Mobile & Wireless World — BEST PRACTICES IN MOBILE & WIRELESS AWARDS PROGRAM

Nominate a potential winner!
Visit **www.mwwusa.com/mcwt** for details.

Sponsored by: Cisco Systems, intel

Pre-Conference Golf Outing

Complimentary for Registered IT End-Users

The Pre-Conference Golf Outing at The Palms Course, located at the JW Marriott Desert Springs Resort, is complimentary ($165 value) for registered IT End-Users. (Other participants, including sponsors and vendors, may play on an "as available" basis and are responsible for all applicable golf outing expenses.)

For details: contact Chris Leger at **1-508-820-8277**

Travel Services and Accommodations

IDG Travel is the official travel company for Mobile & Wireless World. They are your one-stop shop for exclusive discounted rates on hotel accommodations.

IDG TRAVEL SERVICES

To reserve your accommodations:
visit **www.etcentral.com OR**
call **1-800-340-2262 (or 1-508-820-8686)**

The JW Marriott Desert Springs Resort in Palm Desert, California

"... information and contacts gathered ... play into the decision we make on our future products and strategy ..."

Mobile & Wireless World
Hilton Hotels

"... brings IT together – from both the vendor and user community – for an exchange that leads to the introduction of new and better technologies ..."

Ken Newman
Director & Risk Manager
Deutsche Bank

"... enables me to understand what's going on and what will go on in the future ..."

Ken Venner
CIO
Broadcom

mwwusa.com/mcwt or call 1-800-883-9090

Application for Conference Registration

Mobile & Wireless World

Owned & Produced by: COMPUTERWORLD

May 24-27, 2004

JW Marriott Desert Springs Resort
Palm Desert, California

Reserve your accommodations at:
www.etcentral.com or call:
1-800-340-2262 or
Email: eventhousing@idg.com

Registration questions? Please call 1-800-883-9090 or Email: mwwreg@computerworld.com
Visit our website at: www.mwwusa.com/mcwt

CODE: MCWT

OPTIONS:

All dollar amounts are in U.S. funds; registrations include full access to all sessions, the Expo, meals and receptions. Transportation and hotel accommodations are your responsibility and can be reserved by visiting www.etcentral.com, calling 1-800-340-2262, or emailing eventhousing@idg.com

	Earlybird Registration (through April 17, 2004)	Pre-Conference Registration (April 17 through May 17, 2004)	Full/On-Site Registration (on or after May 17, 2004)
IT End-User:*	❑ $995	❑ $1,295	❑ $1,495
Non-Sponsoring Vendor:**	❑ $5,000	❑ $5,000	❑ $5,000

* IT End-Users are defined as those who are attending Computerworld's Mobile & Wireless World with an intent (and an IT spending budget) to potentially buy/lease hardware/software/services, etc. from our conference sponsors and exhibitors, and are themselves not a mobile & wireless industry vendor organization. As such, account representatives, business development personnel, analysts, and anyone else attending who does not have IT purchasing influence within their organization are excluded from the "IT End-User" designation. Interpretation and enforcement of this policy are at the sole discretion of Computerworld. Please call 1-800-883-9090 with questions.

** Vendors are encouraged to participate in Computerworld's Mobile & Wireless World through sponsorship. (Details are available by calling Leo Leger at 1-508-820-8212.) Alternatively, vendors and other "non-IT end-user" professionals as defined by Computerworld, may apply for registration at the "non-sponsoring vendor" rate. Determination of what constitutes a "non-sponsoring vendor" registration is at the sole discretion of Computerworld.

Registration Information: (This section must be completed in order to process your application)

First Name:_____ Middle Initial:_____ Last Name:_____

Title:_____ Company:_____

Street Address:_____ Suite, Apt., etc.:_____

City:_____ State/Prov:_____ Zip/Postal Code:_____

Country:_____ Phone Number:_____ Extension:_____

Fax Number:_____ E-Mail Address:_____

Corporate/Business Website:_____ ❑ Special Services Required? (Please attach written description)

Would you like to receive information about the golf outing on Monday, May 24th? ❑ Yes ❑ No

Attendee Profile: (This section must be completed in order to process your application)

Your business/industry:
- ❑ Transportation / Utilities/Energy
- ❑ Mining / Oil / Gas
- ❑ Non-Profit / Trade Association
- ❑ Media / Publishing
- ❑ Banking
- ❑ Finance
- ❑ Accounting
- ❑ Insurance
- ❑ Real Estate
- ❑ Telecommunications
- ❑ Wholesale / Retail (non-computer)
- ❑ Computer Service Provider
- ❑ Advertising / Marketing / Public Relations
- ❑ Entertainment
- ❑ Education
- ❑ Food Industry
- ❑ Government / Military
- ❑ Healthcare / Medical Services
- ❑ Travel /Hospitality / Recreation
- ❑ Manufacturing (non-IT)
- ❑ Automobile
- ❑ Computers, Communications or Peripheral Equipment or Software Manufacturing
- ❑ Agriculture / Forestry / Fisheries
- ❑ Other

Your job title/function:
- ❑ CEO/COO/Chairman/President
- ❑ CIO/CTO
- ❑ VP/GM/Director
- ❑ IS/IT Director/Manager
- ❑ Other IS/IT Department Manager/Supervisor
- ❑ Other Corporate/Business Manager
- ❑ Corporate/Business Staff
- ❑ Consultant (Internal) or Other

Number of employees in your entire organization (ALL locations):
- ❑ Over 10,000
- ❑ 5,000 - 9,999
- ❑ 1,000 - 4,999
- ❑ 500 - 999
- ❑ Under 500

What is the estimated annual revenue of your entire organization?:
- ❑ Over $10 Billion
- ❑ $1 Billion - $9.9 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ Under $100 Million

Your organization's annual IT/IS budget for all IT/IS products:
- ❑ Over $1 Billion
- ❑ $500 Million - $999 Million
- ❑ $100 Million - $499 Million
- ❑ $10 Million - $99 Million
- ❑ $1 Million - $9.9 Million
- ❑ Under $1 Million

What is Your Organization's Primary Mobile & Wireless Desktop, Notebook, or Tablet PC Provider?
- ❑ Acer
- ❑ Apple
- ❑ Dell
- ❑ Fujitsu
- ❑ Gateway
- ❑ Hewlett-Packard / Compaq
- ❑ IBM
- ❑ Sharp
- ❑ Sony
- ❑ Toshiba

Payment Method

❑ Check Enclosed (checks must be received by May 3, 2004 payable to Computerworld) Mail to: Computerworld, Attn: Pam Malingowski, 500 Old Connecticut Path, Framingham, MA 01701

❑ American Express ❑ VISA ❑ MasterCard

Account Number:_____

Expiration Date:_____

Card Holder Name:_____

Signature of Card Holder:_____

Cancellation Policy

In the event of cancellation, the registrant has three options (all of which require written notification):

1) He or she may substitute another attendee for this conference.
2) He or she may transfer this registration to the next Mobile & Wireless World Conference.
3) The registration fee will be refunded, less $250 service charge, if written notice is received by May 3, 2004.

Please send cancellation requests via email to: mwwreg@computerworld.com

Computerworld reserves the right to limit and/or refuse any registration for any reason.

Please fax this completed application to 508-820-8254

is a heavy SAP user and now they see SAP has a strong portal offering, do they migrate [all their portals] to SAP?" Torbey says many TandemSeven clients face a similar decision if their company is heavily invested in IBM, PeopleSoft Inc., Oracle Corp. or Microsoft Corp. applications.

Ellis says Wells Fargo's investment in BEA Systems Inc.'s enterprise software played a major role in the San Francisco-based company's decision to use BEA's WebLogic Portal to create a consolidated portal for employees. "We already used BEA for application servers, and that connection was important because it simplified pulling data and workflow out of [existing applications]," he says.

A few years ago, businesses seeking to implement portals were likely to perform a "runoff" among leading portal-software specialists. Today, Torbey says, the choice is different: A large company is likely to be a customer of at least a few vendors that now offer portal tools, so the question is, which one does the company migrate to?

If that seems like an easier choice, think again. In late 2001, Whirlpool Corp. in Benton Harbor, Mich., decided to streamline its portals picture.

"We had a lot of Web sites that people called portals — less than 50 — but we were headed down that [proliferation] path," says Gil Urban, Whirlpool's information systems director. Various Whirlpool factories, regional offices and business units had each thrown together Web sites or portals.

Initially, the manufacturing giant leaned toward Plumtree's portal software, which Urban describes as "the leader at the time." But Whirlpool's goals expanded when the company decided to develop a portal for all 15,000 of its employees. "We're a heavy IBM user with lots of IBM infrastructure," Urban says. As a result, Whirlpool opted to use IBM's WebSphere Portal, even though he thought some competitors' products were superior at the time.

"In 2001, it was a good product, but not best in class," Urban says. "But we thought that in the future it would be the best, and now it is."

Here's where things get complicated, though, not just for Whirlpool but potentially for other large businesses: The manufacturer is also a major user of SAP enterprise applications. When Whirlpool selected IBM, SAP's NetWeaver portal product wasn't yet available. Now that it is, Whirlpool is implementing a split strategy that will tack an SAP front end onto WebSphere Portal for the 2,000 or so employees accustomed to working with SAP. "Those 2,000 will have an SAP interface to the operational side," Urban says. "But for standard employee services, they'll be on MyWhirlpool," the company's IBM-based portal.

Content Management

When companies start to consolidate portals, one of the big headaches they run into is scattershot content updating. Depending on the enthusiasm and expertise of employees, some departments diligently update their portals or Web pages — while others may lag behind by months or even years.

That was the case when the nation of Bermuda undertook a project to convert its 38 departmental portals and Web sites into a single portal that would serve citizens, businesses, tourists and government workers. Bermuda's government considered more than a dozen vendors before settling on Plumtree. According to Nigel Hickson, Bermuda's e-commerce chief, content management and related workflow were key Plumtree differentiators.

Bermuda plans to designate a content maintainer in each government agency, then train agency workers to fill out templates provided in Plumtree Content Server. IT has created standardized portlet templates so content maintainers don't have to worry about issues such as formatting. For example, when an e-mail address or phone number changes, the maintainer simply calls up a "Contact Us" portlet, keys in the new data and saves.

Like many other organizations, Bermuda's government early on decided to blow up its existing portals and Web sites and rebuild from scratch. Hickson says that in the long run, this involved less work and made for a cleaner final product than would have been possible through integration.

What happens next varies by agency — that's the flexibility Hickson likes. "In the Department of E-commerce, it's just me," he says. "So the approval process, such as it is, consists of me checking my spelling." In a larger agency with a more defined workflow, the people who need to sign off on a change are automatically notified that the content maintainer has made one.

Getting a grasp on the myriad Web, intranet and portal sites that most businesses have is a task more and more IT managers are facing. But much of the work is just a matter of excising unneeded content — Ellis says Wells Fargo turned 10,000 pages of content into 2,000 — and a variety of applications automate significant parts of the process.

The taxonomy products offered by portal vendors can help with this consolidation. Taxonomy tools use Web services to scan other data sources, such as Web pages, for new or deleted content, thus automatically updating an enterprise portal directory. Without such a directory, the applications and content in the portal can result in sprawl.

Wells Fargo uses BEA's taxonomy tools to ensure that data from outside sources remains pertinent and up to date, Ellis says. And delivering fresh, useful information is the goal of any portal project. **46449**

Ulfelder is a Computerworld *contributing writer in Southboro, Mass. He can be reached at sulfelder@charter.net.*

THE PLAYERS

Most leading software vendors offer a portal product as a component of their enterprise suites. In addition, portal specialists Plumtree and Vignette remain market forces.

VENDOR	PORTAL PRODUCT
BEA Systems (www.bea.com)	BEA WebLogic Portal
IBM (www.ibm.com)	IBM WebSphere Portal Version 5
Microsoft (www.microsoft.com)	SharePoint Portal Server 2003
Oracle (www.oracle.com)	Oracle Portal
PeopleSoft (www.peoplesoft.com)	PeopleSoft Enterprise Portal
Plumtree Software (www.plumtree.com)	Plumtree Corporate Portal
SAP (www.sap.com)	SAP Enterprise Portal
Sun Microsystems Inc. (www.sun.com)	Sun Java System Portal Server
Vignette (www.vignette.com)	Vignette Application Portal V7

Setting the Standards

Two evolving standards could help make portal consolidation easier for companies by letting developers write interchangeable components, called portlets, in any language and environment they choose:

■ **Web Services Remote Portlet (WSRP).** This standard was approved last September by OASIS, the Organization for the Advancement of Structured Information Standards. The idea is to allow portals to use Web services technology to invoke various content sources. WSRP backers say widespread adoption of the standard will free enterprises of the need to either host a content source at the location of the portal server or to write new code for each remote content source. Instead, developers would write portlets in the environment of their choosing.

WSRP enjoys the support of virtually every vendor in the portal arena.

■ **JSR 168.** This specification is intended to enable interoperability between portlets and portals. The name refers to the number of the Java Specification Request created by the Java Community Process, a group of Java developers and licensees. JSR 168 will define a set of application programming interfaces for portals, addressing aggregation, personalization, presentation and security.

So far, the standards have received mixed reviews. "There's certainly a market need for standards in this field, because portal deployments are expensive and require specialized skills," says Ray Valdes, an analyst at Stamford, Conn.-based Gartner.

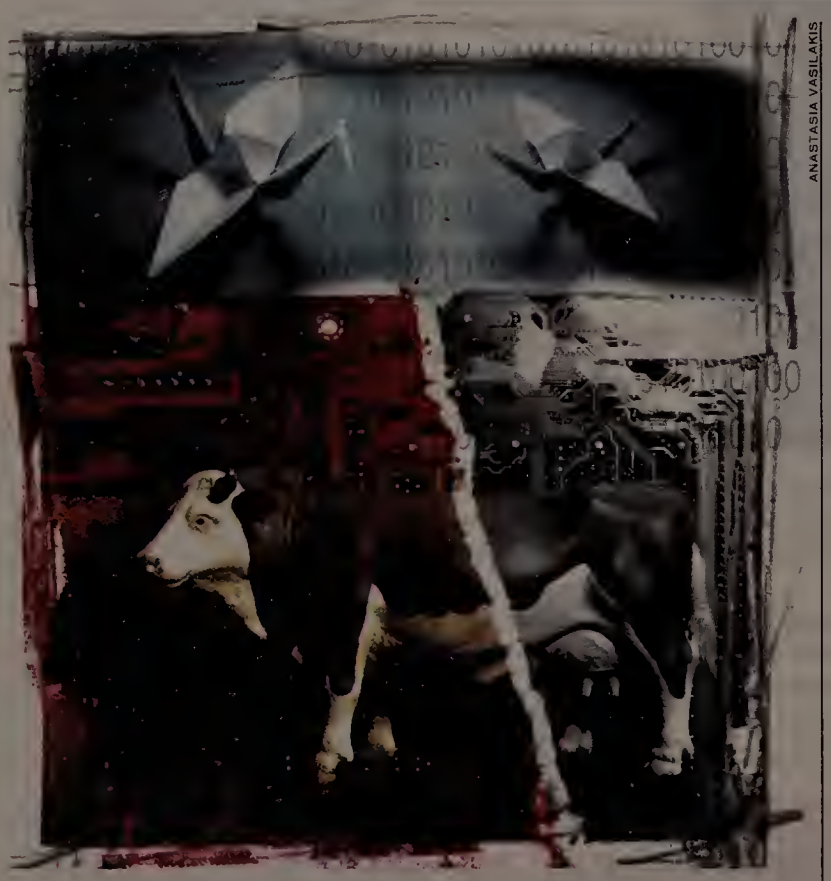
However, Valdes describes the first versions of WSRP and JSR 168 as "underpowered." He adds, "It's not quite accurate to say they were too little, too late – but they took a long time to arrive and weren't as valuable as people had been hoping."

However, OASIS and the Java Community Process are already working on stouter versions of WSRP and JSR 168. And because each standard enjoys unusually broad vendor support, they are expected to take hold in the next 18 months and make it significantly easier for IT organizations to write portal components.

– *Steve Ulfelder*

Computational Origami

Ancient art finds industrial, medical uses. By Bob Brewin


ANASTASIA VASILAKIS

ROBERT LANG, a laser physicist and origami artist for more than 30 years, continues to be amazed at the potential applications of the centuries-old art of paper folding. "You would think that there is not much you can do with origami as an art form that has not been already figured out," he says.

But, Lang adds, origami artists continue to "demonstrate new structures and realize new levels of beauty," a statement well supported by his own origami renderings of subjects such as cows, fish, blue herons and owls.

Origami was purely a hobby for Lang until he decided to apply the kind of mathematical modeling he used in laser physics to paper folding.

Lang, who is based in Alamo, Calif., now considers himself a full-time artist. He says computational origami helped him automate the process by which he determined how to make the precise kinds of folds needed to produce a multilegged insect and its antennae.

FUTURE WATCH

After he did that, he realized that the theory and equations he developed to make better origami figures could also be applied to engineering problems in which a large surface needs to be folded to fit into a flat space without cutting.

Today, while concentrating on his art, Lang also works as an industrial consultant, applying his computational origami expertise to the design of a range of products, including consumer electronics and medical equipment.

From Birds to Air Bags

EASi Engineering GmbH in Alzenau, Germany, asked Lang to help determine how to squeeze a very large object — an automobile air bag — into a tiny compartment inside a steering wheel. Lang had already developed algorithms to flatten a set of polygons, and he applied them to a computer simulation of how to flatten the 3-D polyhedron shape of an inflated air bag. This process saved time and eliminated the expensive requirement of crashing real cars to determine if an air-bag design would really work, Lang says.

The air-bag design was based on an algorithm Lang calls the "universal molecule," which flattens a set of polygons so their edges remain aligned to one another.

Lang sees a definite future for computational origami in engineering and design work, but he acknowledges that the field is relatively esoteric and requires artistic as well as computational, mathematical and engineering skills.

"You have to be able to fold paper" before proceeding to computational origami, he says.

Lang developed software called TreeMaker that runs on Apple Macintosh computers and helps automate origami design. The program, which Lang said can be mastered by a high school student, helps users figure out how to fold a square into a number shapes. A user outlines a figure on the TreeMaker screen, and the software determines the number of flaps required to make that particular shape.

If users want to create advanced designs (such as that of an air bag), they can download additional algorithms from the Treemaker Web site (*http://origami.kvi.nl/programs/treemaker/*).

But Lang says only 100 or so people have downloaded the software, and only about five or 10 are using it, another indication that the field of computational origami is still in its early stages.

Bad Folds

Erik Demaine, a 22-year-old professor of electrical engineering and computer science at MIT, started folding paper at age 6 and developed that hobby into the study of the mathematics of folded forms.

Demaine now studies folds in proteins, the basic building blocks of life. He believes that computational origami could fight diseases that are currently incurable, such as mad cow disease, which are caused by proteins that have what he calls "bad folds."

Demaine, a 2003 winner of a MacArthur Foundation Fellowship — commonly known as "genius" grant — calls protein folding his "main area of interest" and says he plans to apply what he learned from paper folding to figure out why some proteins fold into a useful shape and others do not. That research could eventually lead to the design of custom proteins that fight disease. The custom proteins could then be unleashed to destroy "bad" proteins.

Ajay Royyuru, manager of the computational center at IBM Research in Yorktown, N.Y., agrees that determining the way various proteins twist and fold could help provide cures for diseases such as Alzheimer's and cystic fibrosis.

Computational origami could help scientists crack some basic secrets of protein structure and sequence, Royyuru says. The technology could help scientists determine why a protein falls into a specific shape "and why that shape and nothing else." High-speed computers can be used to develop "fold recognition" software and help simulate folding patterns, Royyuru says.

But determining what he refers to as "correct" and "incorrect" protein folds by modeling them with computational origami is a daunting task, he says, requiring computers two to three times more powerful than the most powerful supercomputer in existence.

That power can be delivered only by a computer operating at a quadrillion operations per second (1 petaflop, or 1,000 teraflops), and IBM is developing such a computer as part of its Blue Gene project. IBM says it will have a machine capable of 360 teraflops by 2005, but Royyuru says advancing to a petaflop-speed machine will be "quite a jump," and he can't predict when a computer like that will be available.

Even after such a machine is delivered, it could still take decades to unravel the mysteries of protein folds, Royyuru says. But perhaps that effort will be aided by science that harkens back to techniques used to create elegant paper birds. **46430**

MORE ONLINE

Computational origami goes to the fair. Read about it online:

QuickLink 46687
www.computerworld.com

A server engineered to deliver on both sides of the price/performance equation.

The HP ProLiant DL380 G3 gives you true high performance at a truly affordable price. While our Intel® Xeon™ processor-powered HP ProLiant DL380 G3 server certainly offers blazing performance, the engineers behind it would challenge you to rethink the definition of performance entirely. Consider, for example, what happens when you need to add a storage device to a typical server—the server must be powered down, and your productivity drops to zero. This fact led us to design hot-pluggable technology on the DL380 that allows you to swap out a number of key server components, including the reliable and efficient HP DAT 72h tape backup solution without ever interrupting server operation. The DL380 and DAT 72h also feature space-saving designs, and server management is easy yet robust thanks to our ProLiant Essentials Software. Demand more uptime and more real performance from a server. And demand more value, from HP.

HP ProLiant DL380 G3 SERVER

$3,018

- One Intel® Xean™ pracessor 3.06GHz with 512KB cache (upgradable ta 2 x 3.20GHz)
- 1GB PC2100DDR SDRAM (12GB maximum)†
- Integrated Lights-Out (iLO) management (standard)
- ServerWarks GC-LE Chipset
- Integrated Smart Array 5i Plus Cantraller
- Three available PCI-X slots (2 hat pluggable)
- Two NC7781 PCI-X Gigabit NICs (embedded)

Enhance your system.

HP StorageWorks DAT 72h HOT-PLUG TAPE DRIVE

- Industry-standard DDS technalogy
- Up to 36GB native capacity on a single tape, 72GB at 2:1 compression†
- HP StorageWorks One-Button Disaster Recavery (OBDR) restores your entire system at the tauch af a buttan
- Up ta 3MB/s native data transfer rate, 6MB/s with 2:1 compression

$1,349

(after $150 instant savings)*

intel inside XEON

hp invent

*HP StorageWorks DAT 72h offer good through 5/31/04.

BUY NOW

Click www.hp.com/go/proliantesg2 Or Toll Free 1-888-367-1949

Reductions taken at time of purchase. *HP StorageWorks DAT 72h hot-plug tape drive offer ends 5/31/04. Other restrictions may apply. Prices shown are HP direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Limited order quantities. Offers cannot be combined with any other offer or discount and are good while supplies last. Promotions void where prohibited or restricted by law. HP reserves the right to modify or withdraw these promotions at any time. HPFSC reserves the right to change or cancel this program at any time without notice. †For hard drives, GB=billion bytes. All featured offers available in U.S. only. Intel, Intel Inside, the Intel Inside logo and Intel Xeon are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the U.S. and other countries. ©2004 Hewlett-Packard Development Company, L.P.

Security Policy A Paper Tiger

Ignored security policies result in problems ranging from rogue access points to inadequate incident response. By Mathias Thurman

SECURITY MANAGER'S JOURNAL

I FACED TWO ISSUES this week, and both came about as a result of security policies that have been routinely ignored. The first had to do with our wireless LAN infrastructure.

Although I work out of the main data center, I frequently travel to the corporate headquarters campus. On those occasions, I often use my iPaq Pocket PC and AirMagnet Inc.'s software to scan for rogue access points on the WLAN. The installation of unauthorized APs has been a continuing problem, so when I detected one the other day, I wasn't surprised.

This AP registered a signal strength of about 70% — strong enough to lead me to believe that it wasn't transmitting from outside of my company's offices. Indeed, I was able to associate to the AP, open a browser window and get to the corporate intranet. The device had no encryption enabled, it was broadcasting the Service Set Identifier code, and the AP gave my device an IP address that wasn't within our corporate address range.

I called the network engineering group and gave it my device's media access control address and location, thinking that they could log into the switch that was serving the location, look up my MAC address, identify the port and trace it to a specific wall jack. In the past, I've successfully identified rogue APs in this manner.

However, in this instance, the group wasn't able to find my MAC address. I even had the network engineer check some nearby switches, but no luck. Then I tried using AirMagnet's Find utility, which works as a signal-strength meter to help locate the AP. I've gotten close in the past using this method, but it still requires that I peek into employee offices, conference rooms, break areas and so on, to visually locate the AP. In the process, employees have gotten upset with me and started complaining.

This time, however, it worked like a charm. I could see the AP sitting right on top of an employee's monitor.

The device was a WLAN router, which explains why my MAC address didn't show up on the switch port. Because this AP functioned as a router, not a hub, the MAC address wouldn't have registered on the switch. The employee wasn't in, so I had the facilities department open his office. I then unplugged the AP and left a note indicating why I had disconnected it.

Later, the employee said he had installed the AP because his boss "said it would be OK." Neither of them had read the network access policy on our intranet, which prohibits unauthorized network-access devices from being attached to the corporate network. Apparently, our policy awareness training still isn't working. I sent him a note with a Web link to the policy.

"The installation of unauthorized APs has been a continuing problem, so when I detected one the other day, I wasn't surprised."

Something in Common

A few weeks back, in the aftermath of a SQL Slammer outbreak, a manager proposed that my small group take on incident-handling and remediation issues — a task that other departments take care of today and that we're not equipped to do [QuickLink 46060].

I researched how we can do a better job and discovered that IT security isn't the only group with a written incident-handling policy. The data center operations group has its own, 20-page guide, and the networking group has something similar. Each contains relevant information with respect to incident-handling best practices, but each is department-specific. What's even more disturbing, however, is that no one uses these documents. They just sit in a binder on a bookshelf or in electronic form in a shared disk space available only to members of each department.

To rectify that, I wrote a single-page incident-protocol document that outlines the main steps all departments should take when responding to an incident. My goal was to create something that could be printed on a small reference card and placed next to the telephone contact list, security badge and SecurID token that most operations employees carry around. I focused on four areas: preparation, identification, response and containment.

Preparation deals with knowing whom to call when an incident occurs. Identification addresses how to identify and classify an event to avoid false positives. Response dictates the actions to take when an incident has occurred, and containment deals with how to keep the incident from doing more damage or continuing to affect the network.

For example, containment might involve disabling a switch port or implementing access control lists on a router. I want the reference card to help workers become more efficient at handling incidents in a timely manner. Eventually, we'll create a formal crisis-action team and run simulations for training.

Although we're getting better at responding to incidents, common problems arise. One is that no one wants to take charge. There are always lots of managers, directors, engineers and analysts standing around the operations center, looking at logs, e-mail and other tools and forming opinions. But no one is calling the shots. Eventually, someone steps up to the plate.

Another problem is that there is always confusion as to who should conduct certain activities. For example, a common and easy way to identify a Windows resource on an enterprise network is to enter the nbtstat-A command. In our desktop and production server environment, this command will typically identify the user or system name of the machine.

For some reason, there's always a question regarding who should issue the command. I don't quite understand why, as it's a task that takes only a few seconds to complete. Hopefully, by creating a common incident-response protocol and ensuring that everyone is on the same page, our responses to all events will become standardized, and incident management will become a routine aspect of doing business.

WHAT DO YOU THINK?

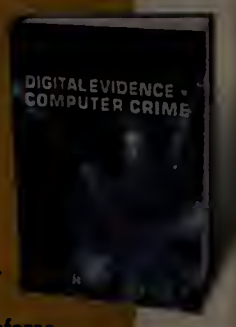
This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com, or join the discussion in our forum: **QuickLink a1590**

To find a complete archive of our Security Manager's Journals, go online to **computerworld.com/secjournal**

SECURITY LOG

Security Bookshelf

■ ***Digital Evidence and Computer Crime, Second Edition,*** **by Eoghan Casey; Academic Press, 2004.**



This behemoth of a book offers more than 680 pages of useful information on digital forensics and computer crime. There's something for everyone – law enforcement agencies that collect and process evidence, forensic analysts, lawyers and other information security professionals.

The author starts out with a good overview of the history, law and general process surrounding forensics and computer crime, and Casey does a great job making difficult concepts easy to understand. Such explanations may come in handy when you're trying to get a technical point across to a lawyer.

The most interesting sections deal with the actual forensics theory and methodologies for the operating systems and hardware in use today. The tools and methodologies described are up to date and relevant, and the case studies are detailed perfectly. This book is a great reference for any security professional facing issues in this area.

– Mathias Thurman

Top Security Technologies

Growth in IT security spending by technology (compound growth rate, 2002-06):

Identity management	47%
User provisioning	46%
Intrusion prevention	45%
WLAN security	44%
Single sign-on	43%
Security event mgt.	42%

SOURCE: [illegible] KEY OF 127 [illegible] PROFESSIONAL [illegible] PARTNERSHIP [illegible]

Need Answers to Your Business Intelligence Questions?

Apply to Attend Computerworld's IT Executive Summit on Business Intelligence

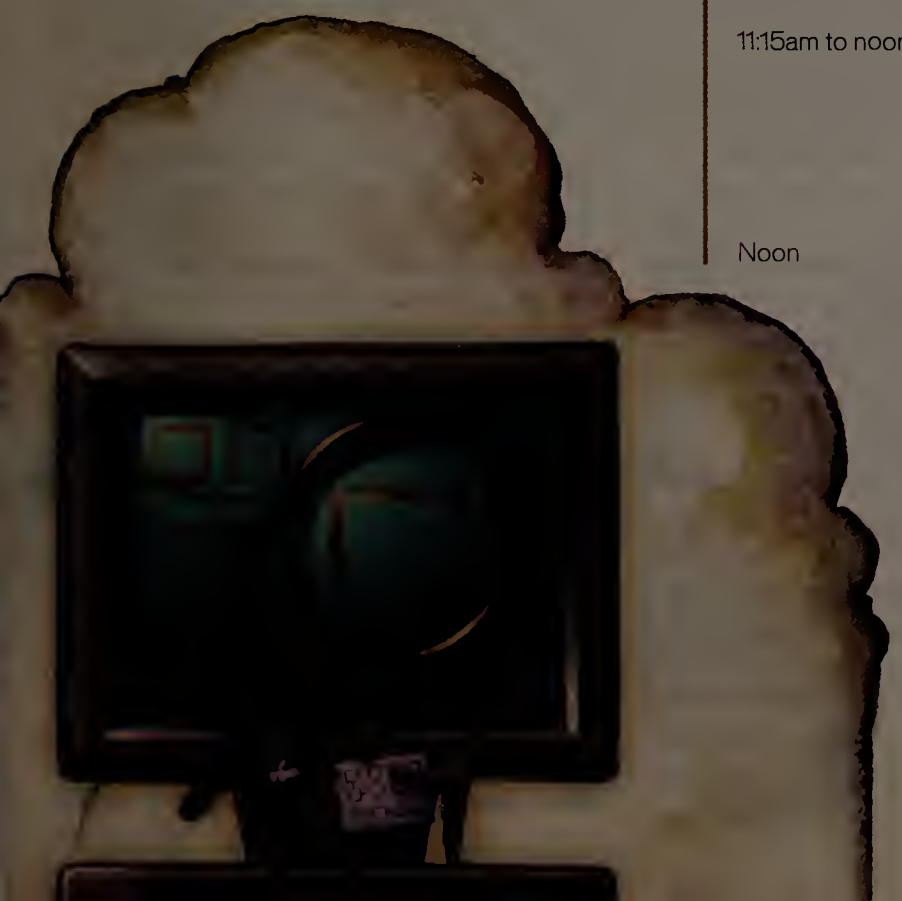
If you're an IT executive* in an end-user organization, apply to attend one of Computerworld's upcoming complimentary one-day summits on Business Intelligence.

Neither a product nor a system, Business Intelligence (BI) is an architecture – a collection of interrelated operational and business performance measurement applications and databases.

The only way to succeed with BI applications is to understand their complexity, their cross-organizational nature, the needs of knowledge workers, your competition, your market, and customer trends.

This summit will give you a comprehensive, one-day overview – and will arm you with the latest thinking and tools to make the right investments in BI.

*Complimentary registration is restricted to qualified IT executives only.



New York City • June 3, 2004

The Pierre New York, a Four Seasons Hotel • Fifth Avenue at 61st Street

7:45am to 8:15am	Registration and Networking Breakfast
8:15am to 8:45am	**Off to See the Data Wizard: Reporting from the Yellow Brick Road** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**User Case Study** Sanjiv Anand, CTO, Hewitt Associates
9:15am to 9:45am	**Business Intelligence in Action at NASD** Martin Colburn, EVP and CTO, National Association of Securities Dealers
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Evolving the Enterprise: Leveraging Information for Competitive Gain** Jim Davis, SVP, SAS
10:45am to 11:15am	**Industry Analyst Perspective:** **The IT Bottom Line: Proving the Value Delivered** Rebecca Wettemann, VP, Research, Nucleus Research
11:15am to noon	**Panel Discussion:** **Creating the Transparent Organization: New Roles for Business Intelligence with Corporate Customers, Suppliers and Government Regulators** Moderator: Julia King, National Correspondent, Computerworld Panelists: Dennis Callahan, EVP & CIO, The Guardian Life Insurance Company of America; Dave Denton, VP of Financial Planning, CVS, Inc.; Robert Dutile, EVP, Key Technology Services, KeyCorp; Ron Miller, Senior Manager, Intel Corporation
Noon	Program Concludes

Chicago • June 9, 2004

Sheraton Chicago Hotel & Towers • 301 East North Water Street

7:45am to 8:15am	Registration and Networking Breakfast
8:15am to 8:45am	**Off to See the Data Wizard: Reporting from the Yellow Brick Road** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**User Case Study** Sanjiv Anand, CTO, Hewitt Associates
9:15am to 9:45am	**Business Intelligence in Action at NASD** Martin Colburn, EVP and CTO, National Association of Securities Dealers
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Evolving the Enterprise: Leveraging Information for Competitive Gain** Jim Davis, SVP, SAS
10:45am to 11:15am	**Industry Analyst Perspective:** **The IT Bottom Line: Proving the Value Delivered** Ian Campbell, CEO, Nucleus Research
11:15am to noon	**Panel Discussion:** **Creating the Transparent Organization: New Roles for Business Intelligence with Corporate Customers, Suppliers and Government Regulators** Moderator: Julia King, National Correspondent, Computerworld Panelists: Bill Farrow, CIO and EVP, Chicago Board of Trade; Richard Gius, SVP of IT, Medical Products and Services, Cardinal Health; Scott Hicar, CIO and VP, Worldwide Information Technology, Maxtor Corporation; Shelley McIntyre, VP of Business Technology Services, The Guardian Life Insurance Company of America
Noon	Program Concludes

Selected speakers include:

Maryfran Johnson
Editor in Chief
Computerworld

Martin Colburn
EVP and CTO
National Association of Securities Dealers

Jim Davis
SVP
SAS

William Farrow
CIO and EVP
Chicago Board of Trade

Julia King
National Correspondent
Computerworld

Apply for registration today

For more information or to apply, visit www.itexecutivesummit.com/bi

Exclusively sponsored by:

sas® intel®

COMPUTERWORLD
IT EXECUTIVE SUMMIT
BUSINESS INTELLIGENCE

BRIEFS

Voyence Launches Networking System

Voyence Inc. last week announced its Voyence Guaranteed Success software, which is intended for configuration management of heterogeneous networks of all sizes. Voyence Guaranteed Success must run with the VoyenceControl appliance for full network design, change and compliance management capabilities, according to the Richardson, Texas-based company. Voyence Guaranteed Success starts at $15,995 for support of up to 100 devices and is available now. That price includes the VoyenceControl appliance, as well as training and certification.

Exact Upgrades Collaboration App

Exact Software North America announced that it has added features to its Exact e-Synergy Web-based collaboration application that will allow users to perform portal-based online cataloging, order entry and order management tasks. The new features, called Web Shop, are designed to integrate with e-Synergy and the company's Macola Enterprise Suite, which automatically receives and processes orders, said Andover, Mass.-based Exact Software. Web Shop is available now as part of e-Synergy and is priced at about $1,000 per user.

Apreo Releases Enforcement Tool

Apreo Inc. has launched Workstation PolicyShield, an application that's designed to manage and enforce appropriate use of files and software by workers. Workstation PolicyShield detects spyware, peer-to-peer programs, games and other unapproved files at the moment they are written to the network, rather than after they are installed, said the Newport Beach, Calif.-based enterprise software vendor. Pricing for the application starts at $945 for 100 users.

NICHOLAS PETRELEY

Living Down to a Low Standard

I RECENTLY SPENT the better part of a week working with the latest version of the open-source GNOME graphical desktop environment on Linux.

I've decided that the only way to explain the regression of GNOME over the years is that Microsoft and/or SCO moles have infiltrated the GNOME leadership in a covert effort to destroy any possibility that Linux could compete with Windows on the desktop.

NICHOLAS PETRELEY is a compute consultant an autho r Ka sa City, MO. He c n be reached t nich treley.com.

To paraphrase the humorist Peter Schickele, who was describing what it was like to discover a new music manuscript by the (fictional) inept composer P.D.Q. Bach, "Each time I get a new version of GNOME, there's this feeling of anticipation and exhilaration — a feeling that this new version of GNOME can't possibly turn out to be as bad as the last one. But so far, each new version lives down to the same low standards set by the previous one."

By the time a software project gets to Version 2.6, a user might reasonably expect that he wouldn't have to adapt to yet another paradigm shift in basic user-interface design, especially when it comes to something as fundamental as how you navigate through desktop folders. Yet this is precisely what users will have to relearn with this latest version of GNOME.

The GNOME file manager, Nautilus, no longer allows users to navigate through folders as one might use a Web browser or Windows Explorer. You no longer browse with all your options accessible in a single window or a split window with a directory tree on the left and icons on the right. Instead, each double-click on a folder icon opens a new window on the screen. If this sounds familiar, it's because this was the default behavior of Windows 95, OS/2 and early versions of Mac OS. The fact that this isn't the default behavior of any mature desktop operating system might have served as a warning sign to GNOME's developers, but never mind that.

Having used OS/2 for years, I found GNOME's retro approach to be a rather pleasantly nostalgic experience. But now that I'm used to navigating folders the way one does on virtually every other desktop, however, I decided to tell the file manager not to open a new window for every folder. But it turns out there is no preference setting that tells Nautilus to use a single window to browse folders.

The only way to change the default behavior of Nautilus is to set an obscure registry key via the command line or the registry editor. Not even that abomination of operating systems, Windows 95, made users retreat to the registry editor to use a single window to navigate folders. I can only assume that the GNOME developers decided to make Nautilus a worse Windows than Windows. I toast their rousing success.

Granted, there are myriad unintuitive keystrokes and shift-key/mouse-click operations you can use to make it easier to navigate folders, all of which will mean squat to the daft simpletons the GNOME developers say they are targeting as their users. But GNOME developers have long since abandoned logic when defending their design choices. For example, one GNOME developer says there's a good reason why users can't change individual colors in desktop themes: Someone might accidentally make both the text and background white, thus rendering the text unreadable.

Of course, this flaw has nothing to do with the inflexibility of the primitive graphical tool kit upon which GNOME was based. It was deliberately designed to protect users who are invariably too incompetent to pick their own colors but are smart enough to memorize shift-clicks and keystrokes or edit the registry to get Nautilus to work the way they like.

Of all the criticisms one might lodge against GNOME, it's the hypocrisy of its design philosophy that looms largest. GNOME grew out of the desire to free people from Microsoft's ability to dictate what users can or can't do. Yet GNOME is built on the premise that its developers are so much wiser than users when it comes to navigating folders and setting colors that GNOME users shouldn't have a choice in the matter. With an attitude like that, heaven help us if GNOME turns out to be the only defense Linux has on the desktop against a Microsoft hegemony. **46629**

WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

Managing IT Risk at Delta
Delta Technologies uses a rigorous but simple scorecard to balance the risk of technology failure against the costs of upgrading. **Page 34**

Career Watch
Mary Finlay, deputy CIO at Partners HealthCare, talks about the Regional Leadership Forum and soft skills. Plus, tips for managing conflict in the IT workplace. **Page 36**

OPINION
Risk/Reward Contracts: Laying the Foundations
Bart Perkins explains how to manage this type of contract to maximize the rewards while minimizing the risks. **Page 37**

DANIEL BAXTER

HEALTH CARE'S Major Illness

Supply chain pains continue to plague most hospitals. Here's how two leaders used IT to improve their prognosis. By Julia King

SUTURES, surgical instruments and other medical supplies typically account for a hefty 25% of a hospital's operating budget. Add labor and logistics costs, and the total jumps to 35% to 40%, according to the Healthcare Financial Management Association, an industry professional organization in Westchester, Ill.

Yet compared with other industries, like high tech, auto manufacturing and consumer packaged goods, health care — and hospitals in particular — is downright dinosaurian when it comes to deploying IT to better manage the supply chain.

Experts recite a litany of explanations, including drum-tight budgets and a sort of institutionalized acceptance of labor-intensive manual materials-management processes.

"Hospitals and clinics tend to want to focus the dollars they have on patient care. They're not going to channel their capital budget into supply chain," says David Youndt, chief operating officer at Hospital Logistics Inc., a for-profit hospital supply and logistics company launched by University Health Network in Toronto.

Given hospitals' primary clinical mission, supply chain excellence is typically undervalued by top management, say many in the industry.

"The prevailing thinking is that materials management are those people we can just keep down in the basement," says Sara Friesen, former director of supply chain at Sunnybrook and Women's Hospital in Toronto. Now, Friesen is general manager of Shared Healthcare Supply Services, also in Toronto.

In the U.S., as in Canada, the hospital industry remains highly fragmented, which has stymied the development of standards for naming, describing, ordering and paying for the tens of thousands of products that hospitals use. With more than 5,000 hospitals and health care systems in the U.S., no single organization is large or powerful enough to dictate how the supply chain works, as Wal-Mart does in the retail sector, says Lee Marston, CIO at Broadlane Inc., a health care software and services company in San Francisco.

Also, very few hospitals have a single, integrated computer system for ordering, tracking and paying for supplies. The upshot is that physicians and other clinicians regularly buy the brands they prefer rather than items a hospital may have contracted for at a discounted price.

Broadlane conducted a yearlong analysis of all of the supplies purchased at one of its multihospital clients. It found that the chain had spent more than eight times what it would have spent had its clinicians all purchased the same supplies at the lowest contracted price. "You find out millions could be saved if everyone got together and paid the same price," Marston says.

The problem is that most hospitals

lack integrated computer systems and therefore don't have easy access to that kind of detailed data.

And it's only getting worse as the industry consolidates and hospitals face the onerous task of integrating their computer systems with those of the facilities they acquire.

Meanwhile, the cost of these combined supply chain inefficiencies is staggering, says Albert Pang, an analyst at market research firm IDC. Hundreds of millions, if not billions, of dollars are left stranded throughout the hospital supply chain in the absence of common computing platforms, standard product descriptions and accurate contract pricing data.

Change is coming, but very slowly. Industry groups are working on product data standards, and physicians are slowly but surely coming to appreciate the efficiencies of technology, such as wireless handheld devices used to electronically write and transmit prescriptions. For now, though, few hospitals have seriously tackled supply chain issues. Here's a look at two that have, using very different strategies.

Allina Hospitals & Clinics

MINNEAPOLIS

With 11 hospitals and 43 clinics in Minnesota and Wisconsin, $1.8 billion Allina is a textbook example of a hospital system that grew by merger and acquisition. In 1999, each of the facilities had relatively good materials management practices in place, but they were running on no fewer than six legacy computer systems in which procurement and payment data was not automatically integrated with the accounting system. The Y2k remediation effort gave Allina an opportunity to implement a common computing platform for its highly fragmented materials management operation, says Scott Grove, director of IT.

Allina implemented Lawson Software Inc.'s materials management and financial applications as well as its contract-pricing application, which keeps track of the ever-changing prices of the thousands of products Allina has negotiated under contract with various suppliers. By early 2000, the system had gone live, giving hospital administrators their first glimpse of overall materials purchasing activity.

"With a common system, we finally had a stadium to play the supply chain game in," says Grove. "We spent a lot of time mining transaction data to come up with good usable [purchasing] information," which pinpointed where off-contract buys were being made. In the first year, the system determined that only 50% of Allina's purchases were on contract.

TEST RESULTS

- In 2003, the health care industry wasted more than $11 billion as a result of supply chain inefficiencies.
- Supplies account for 30% of a hospital's overall cost structure.
- 50% of all medical supplies are bought outside of negotiated contracts.

SOURCE: HEALTHCARE PURCHASING NEWS, JANUARY 2004

"Large hospitals buy a lot of stuff they want quickly off of contract," Grove says, and the hospital ends up paying a premium on those orders.

In January 2003, Allina set a goal to bump up contract purchases of supplies to 70%, something that Grove says is possible only with "very, very clean data and very targeted information." One of the key tasks for IT, which worked with the hospital's contract administration group, was keeping contract and pricing data current and accurate, Grove says.

Every month, the contracts administration group combs through purchasing reports to determine which buys were made on and off contract, tracing transactions down to departments and individual buyers. They learned that "if you've got very targeted information and a few people making a lot of the impact, you can change the numbers very quickly," Grove says.

Between February and November 2002, spending on supplies dropped from 13.2% to 12.8% of net patient services revenue, but that small change netted between $4 million and $4.5 million, Grove notes. Allina also reached its 70% contract buying goal, which translates to $100,000 in savings for every 1% improvement in contract compliance, he adds.

For IT, attaining supply chain efficiencies in health care is "a heavy maintenance issue of keeping data clean," Grove says. "If you can do that, you then have accurate information. What IT did is really focus on providing that information and left the change management issues to organizational managers."

The bottom line: "There is significant payback, but it's [money] you don't know you're losing until you make an effort to go out and quantify the problem," Grove says.

University Health Network

TORONTO

Dissatisfied with the performance of an outsourcer it had hired to handle supply logistics in the late 1990s, the three-hospital University Health Network teamed with its consulting partner, Toronto-based Thiinc Logistics Inc., to form a for-profit hospital supply logistics company. Today, that company, known as Hospital Logistics, serves two other corporate health care customers in Toronto as well as its own three hospitals. The venture has yet to turn a profit, but it has increased the accuracy of deliveries, which ultimately translates to better patient care, says Kevin Empey, vice president of finance and corporate services at University Health Network.

"Before, we were receiving between 85% and 90% of products [that had been ordered] every day. Now, we get between 98.5% and 99.5%," reflecting a significant increase in order accuracy, Empey notes. Among other things, that means surgical cases aren't delayed or postponed because the required instruments aren't available, he says, adding "we did not do this for cost savings; we did it for service."

Nevertheless, a better supply logistics operation had to begin with an integrated computing system that could track contract information, orders and payments as well as warehousing and delivery operations.

Hospital Logistics bought and modified ERP software from Tecsys Inc., a Montreal-based vendor. The system supports radio frequency identification scanning and the use of handhelds as well as in-hospital logistics activities, such as stocking and setting up products at nursing stations. In all, the system tracks more than 25,000 items, all on a just-in-time basis, from the point of origin to delivery at a nursing station. "We spent a lot of time on IT and designing an integrated IT platform," says Youndt.

Sunnybrook and Women's Hospital, one of Hospital Logistics' customers, eliminated its on-site supply warehouse and now maintains minimal backup inventory because supplies have an order-to-delivery turnaround time of less than 12 hours. Customer hospitals maintain very little inventory and have more accurate data about product replenishment, says Friesen.

Hospital Logistics also has a direct electronic link with its customer hospitals' general-ledger systems, to which it uploads transactional information. Hospital administrators can see exactly which products were purchased from which suppliers, so they can reconcile payments against contracted prices.

"Now we're able to access better supplier information for products that flow through hospital logistics," says Friesen, who handles all of the contracting and purchasing for three Toronto hospitals, including Sunnybrook and Women's.

"The real benefit to clinicians is they now truly have the products they need when they need them," says Friesen. "The patient care staff can spend time delivering patient care instead of worrying about chasing down supplies." 46091

Too Much IT

FIRST, THE GOOD NEWS: Business-to-business health care exchanges, medical distributors and manufacturers of health care products all are leveraging IT to streamline hospital supply chains.

Now, the bad news: There's little, if any, coordination.

Health care has no one gatekeeper. There are hundreds of thousands of products, ever-changing contracts, multitiered price structures based on purchase volumes and no single set of standards for naming, describing or buying and selling products electronically. There's also been competition for control, which so far has made matters worse, not better, experts say.

"Different players have a vested interest in the way the supply chain is being run," says IDC analyst Albert Pang. "Often, individual suppliers, distributors and group purchasing organizations try to build their own ecosystems via EDI or other electronic transaction systems that make direct connections to hospital facilities." All too frequently, the systems move and more [illegible] down rather than [illegible]

AT&T APPLICATION AWARE NETWORK. Can your network make decisions? Can it be proactive? Anticipate your needs? Resolve its own issues? Defuse problems before they happen? AT&T designs user-centered networks that intelligently monitor events across systems and applications, resulting in faster diagnosis and automatic restoration. Which adds up to less downtime for your mission critical applications, and more time for your I.T. department to think about other things. So...**CAN YOUR NETWORK DO THIS? For a positive answer, just call 1-888-889-0234.**

AT&T

The world's networking company℠

att.com/networking ©2004 AT&T

AT&T's forward-thinking solutions stay one step ahead of your network's needs

AT&T is taking the intelligence and technological power of the network and centering it on the user's applications. It will be "application-aware," serving the enterprise's needs in real-time so that every demand is anticipated and met; every business objective satisfied. The enterprise will retain full control over its own applications, and can constantly monitor its performance to assure things are running as expected.

The Application-Aware Network will have the ability to deploy an application to the appropriate server as well as manage the load balancing across multiple servers to maximize results. When an application is no longer needed, those resources will be made available to other applications. Reliability and business continuity will be achieved by deploying applications across a number of servers and across a number of nodes.

The network will take advantage of new technologies to provide a shared, standards-based infrastructure for deploying, integrating and operating mission-critical applications. Customers will benefit from the economies of scale achieved by leveraging a shared infrastructure and also benefit by only paying for the resources actually used – while knowing that the capacity is available to handle spikes in demand.

HOSSEIN ESLAMBOLCHI, PRESIDENT OF AT&T LABS, AT&T CTO AND AT&T CIO, IS DRIVING THE CREATION OF AT&T'S APPLICATION-AWARE NETWORK, AND IS CONTINUALLY RECEIVING HIGH ACCLAIM FOR HIS NETWORKING VISION OF THE FUTURE. HERE'S WHAT A FEW OTHERS HAVE TO SAY...

- The # 1 Mover and Shaker in the Telecommunications Industry for his vision of creating a flexible, multi-service network edge with the capability for customers to self-provision services. LightReading.com
- Hossein was recognized by the Executive Council of New York as one of the top 10 innovators of 2003.

True network intelligence changes the game for customers. AT&T's Application-Aware Network will be built on a single, global photonic infrastructure that automates and simplifies every application by providing built-in network intelligence that anticipates user needs, diagnoses and self-heals to keep the network running smoothly. Now that's more than just simple – it's smart.

- Applications will be dynamically deployed to maximize server utilization and performance, improving the customer experience and reducing capital investments.
- It will anticipate peak usage with the intelligence to handle spikes in demand by automatically allocating anticipated capacity.
- It will reduce cost by leveraging operational support infrastructure (i.e. systems, people, etc.).
- It will provide hands-free, end-to-end flow through process, enabling AT&T to deliver services to customers in real-time, ultimately, with zero cycle time and zero defects.
- Reliability, security and business continuity will be infused into every layer.

For more information, contact your AT&T Representative, or visit www.att.com/networking.

AT&T

AT&T Application Aware Network. © 2004 AT&T. All Rights Reserved. Printed in U.S.A. AB-0163

Got Questions About Network Consolidation?

Computerworld's IT Executive Summit Has the Answers

If you're an IT executive* in an end-user organization, apply to attend Computerworld's upcoming complimentary half-day summit on Network Consolidation.

CIOs and senior IT executives are finding that consolidating high-performance networks can play a key role in improving business application performance while significantly reducing operational costs.

The proliferation of network capacity and related storage and server infrastructure presents a daunting challenge for today's enterprises, many of which are positioning themselves for growth yet still seeking to reduce IT costs where feasible.

By leveraging the knowledge of industry experts and the real-world experience and advice of your IT peers, this IT Executive Summit will provide an overview of effective strategies for consolidating and connecting networks and data center applications.

*Complimentary registration is restricted to qualified IT executives only.

Streamlining Networks and Data Centers: The Business Benefits of Consolidation

New York City • June 15, 2004

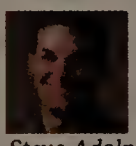
New York Marriott Marquis • Cantor Jolson Room • 1535 Broadway

7:45am to 8:15am	Registration and Networking Breakfast
8:15am to 8:45am	**Rebuilding the IT Foundation** Maryfran Johnson, Editor in Chief, Computerworld
8:45am to 9:15am	**Infrastructure Makeover: Moving the U.S. Air Force Toward Network-Centric Services Delivery** Brigadier General Brad Butler, Deputy Chief Information Officer, U.S. Air Force
9:15am to 9:45am	**User Case Study**
9:45am to 10:15am	Refreshment and Networking Break
10:15am to 10:45am	**Customer Challenges and Solutions: Real-Life Scenarios Connecting Data Centers Over Distance** Steve Adolph, CTO, Enterprise Solutions Group, CIENA
10:45am to 11:15am	**Network Consolidation and the Data Center: Boosting Business Performance and Application Availability** Richard Villars, Vice President, Storage Systems, IDC
11:15am to noon	**Strategies for Streamlining Key IT Resources** Panel Moderator: Maryfran Johnson, Editor in Chief, Computerworld
Noon	Program Concludes

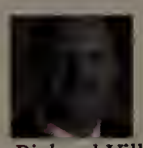
Selected speakers include:

Maryfran Johnson
Editor in Chief
Computerworld

Brigadier General Brad Butler
Deputy Chief Information Officer
U.S. Air Force



Steve Adolph
CTO, Enterprise Solutions Group
CIENA



Richard Villars
Vice President, Storage Systems
IDC

Apply for registration today

For more information or to apply, visit
www.itexecutivesummit.com/nc

Exclusively sponsored by:

CIENA®

COMPUTERWORLD
IT EXECUTIVE SUMMIT
NETWORK CONSOLIDATION

MANAGING IT RISK AT DELTA

The airline uses a rigorous but simple scorecard to balance the risk of technology failure against the costs of upgrading.

BY GARY H. ANTHES

Managers at Delta Technology Inc. once endlessly debated whether they should spend money to upgrade or replace their IT assets, from laptops and mainframes to networks. Although the IT capital budget is prepared annually, these debates "seemed to occur daily," says Brian Leinbach, senior vice president for development at the subsidiary of Atlanta-based Delta Air Lines Inc.

But the debating and wrangling has now largely stopped, he says, thanks to a simple but relatively rigorous framework for analyzing the costs and risks of IT infrastructure renewal. "It's fairly intuitive," Leinbach says. "Simple ideas are often best."

The framework is based on a curve that weighs the risk of failure against the cost of investments. At one end, risks are low but the investments required are too high. For example, it might cost *x* to reduce the risk of failure to one in a million, but to reduce it further might cost 100*x*, which is considered too high for the expected payoff. At the other end, investments are modest but risks are too high.

Leinbach says Delta strives to stay near the middle of the curve in a "manageable" area between unacceptable risk and unaffordable investment. The company's annual capital budget of $200 million supports mainframes, Unix and Windows NT servers, desktops, and voice and data networks.

Delta Technology has developed a weighted score for each combination of business area and IT asset, based on five factors: technology age, business value at risk, platform supportability, platform complexity and risk of failure (see large chart). Each is then assigned a green, yellow or red flag, depending on whether the IT asset in that business area is deemed to present low, medium or high risk to the airline.

The results are combined and might show, for example, that the server infrastructure presents a medium risk for Business Area 1, a low risk for Business Area 2 and a high risk for Business Area 3 (see small chart).

The method works for all parts of the business, Leinbach says. "Even if you are just in finance and responsible for the books, that's not required to keep an airplane in the air, but you can't run the company very long if you can't file your paperwork."

The final step in preparation for budget writing is to develop multiple spending scenarios that show the impact on risk (again by color) in each of the business areas that would result from different levels of spending on IT infrastructure renewal.

The scorecards help focus managers' attention on risks. "It makes everyone take stock of their systems," Leinbach says. "A big red stoplight is a great communications tool." The risk analysis framework has made it easier to understand capital expenditure priorities and to communicate them to all levels of management, he adds.

"Doing this by business area allows us to have a one-on-one relationship with someone on the business side of the table," Leinbach says. "You are really counseling them, saying, 'If we spend this much in this area, these are the results. Are you OK with that? How much risk do you think you can take? Do you want to help me lobby for more money overall so your share could be larger?'

"And a finance guy might have a different view of risk versus a guy in flight operations," he adds.

The data on IT asset failure probabilities and modes is highly automated, Leinbach says, but "some of the other stuff is harder. Some is business knowledge, and some is intuition."

Although Delta's methodology is relatively simple, it's more rigorous than what's employed by 75% to 90% of Fortune 500 companies, says Jack Heine, an analyst at Gartner Inc. It gives IT people a good tool for showing the possible consequences of budget cuts and for predicting their effects on future risk, he says.

"The fact that they have formalized it is a very good thing, and so is the fact that they are actually applying it to their future migration planning," Heine says. When business people ask what IT has done for them lately, he says, IT can say, " 'Well, we quantified the risk in 2004, and we will be able to measure our capabilities and successes against plan in 2007.' That's great."

46038

A HYPOTHETICAL SCORE

Adding the risk scores in the green column (see chart to the right) produces a scorecard like this, color-coded for high (red), medium (yellow) and low (green) risk.

	NETWORK	SERVERS	DEVICES
Business Area 1	■	■	■
Business Area 2	■		
Business Area 3	■	■	N/A
Business Area 4	■		■

SOURCE DELTA TECHNOLOGY INC

RISK-SCORING GUIDELINES

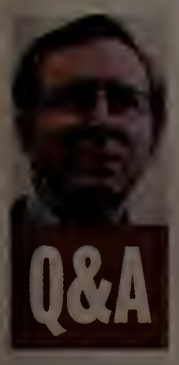
CATEGORY	RISK SCORE	VALUE
Technology age	1	1 year old
	2	2 years old
	3	3 years old
	4	4 years old
	5	5 or more years old
Business value at risk	1	Would disrupt noncore functions (e.g., finance, HR).
	3	Would disrupt customer-facing systems or reduce operational capacity.
	5	Would disrupt core operations (e.g., flights).
Platform supportability	1	A generally available product.
	2	No longer generally available but fully supported by vendor.
	3	Vendor has announced end of life for platform but still supports it.
	4	No longer supported by vendor.
	5	No support; spares in short supply or nonexistent.
Platform complexity	1	Single function, single application.
	3	Multiple functions or applications for one business unit.
	5	Multiple functions or applications for multiple business units.
Platform risk of failure	1	History of below-normal failure rates.
	3	History of normal failure rates.
	5	History of above-normal failure rates.

TOTAL RISK SCORE: High risk: 18-25 ■ Medium risk: 11-17 Low risk: 5-10

SOURCE DELTA TECHNOLOGY INC

Tall Tales

Nothing motivates people like a story.



When he was director of knowledge management at the World Bank, **Stephen Denning** *discovered a powerful leadership tool: storytelling. He found that it often succeeded in inspiring and motivating people when cold, hard logic failed. In May's* Harvard Business Review, *Denning describes how good storytelling can galvanize an organization around a business goal. He told Kathleen Melymuka how IT leaders can make this low-tech tool work for them.*

When we talk about storytelling in an IT environment, how are we defining *story*? I've defined it in a fairly broad way to be any account with time, place and a sequence of events.

How do stories succeed in moving people to action where logic and analysis fail? The presenter of a logical analysis asserts a proposition: "The cat sat on the mat." To which the response is, "No, it didn't." If, on the other hand, I say, "Let me tell you about a cat that was sitting on a mat," then we're arm in arm, looking together. I'm not forcing a conclusion. But when the listener thinks, "Maybe that could apply in my context," then you're one millimeter away from starting to implement something. Actions follow from narrative.

Why do business and IT leaders resist the idea of storytelling as a business tool? The 20th century was the high point of the premise that anything not analytic and logical doesn't have any intellectual respectability. Many disciplines have come to see that that vision of life isn't the whole story, but management and IT are among the last bastions of the world as a machine.

Given that bias toward the analytic, if an IT leader starts telling a story, don't you think the department will roll its collective eyes? If you announce, "I am going to tell you a story," you'll get the rolling of the eyes, but when I was reporting to the CIO at the World Bank, I never said that. I said, "Let me tell you about something that happened two weeks ago," and curiosity is raised, and before you know it, they're following the story.

You talk about the need to match the story to the situation. How would an IT leader use a story to spark action? In the fall of 1998, I was called to give a presentation on why the World Bank should bother with knowledge management when we seemed on the brink of global financial crisis. I said, "Let me tell you something that happened two weeks ago. A World Bank highways team in Pakistan got an unexpected question from Pakistani highway administration. They wanted to try different technology, and they needed to make the decision the next week. What did we advise? The team contacted 300 highway experts in and outside the bank by e-mail. In the next 48 hours, they got help from someone in Jordan using that technology, someone in Argentina writing a book on the subject, someone in New Zealand with guidelines. . . . Now that we have this knowledge, we can make it available through the Web for anyone." They said, "Why aren't we making this happen all over the organization?"

What is it about that story that makes it work? There's a particular pattern underlying that story. It has a protagonist with whom the audience is likely to empathize. It actually happened, and the truth of the story snaps listeners out of complacency. It's positive in tone. And it's told in a minimalist fashion, because I don't want them thinking all about what's going on in Pakistan; they need space in their minds to think, "Yeah, I can do this in my environment." Once executives can learn to understand that pattern, whether they're introducing CRM or SAP, they'll know how to find a suitable story to spark people to action.

Another high priority in IT is fostering collaboration. What's an example of how a story could help a project team jell? We were asked by a director to help get his squabbling group to be more collaborative. We had a meeting with them and asked for a volunteer to tell a moving story about some recent work-related event. We said, "Pull out all the stops and tell everything you felt about what was happening to you." That story sparked a whole series of stories from the rest of the group. People were interested in hearing the stories because they were about the same subjects they were grappling with, and they wanted to tell their stories. By the end of an hour, the group realized they had a common perception of the problems and what needed to be done. With a chain reaction of stories, it's remarkable how quickly a group can move to a collaborative mind-set.

IT isn't known for loquacious folks. Can introverted, analytical people become good storytellers? The most effective storytellers are not glib extroverts. In fact, when a storyteller is stumbling and clearly struggling, then listeners reach out and help and fill in the blanks. But we're all storytellers. We start telling stories spontaneously at the age of 2. Then school and work tell you to put away stories. But we are a storytelling species. Dogs sniff each other; humans tell stories. **46307**

This is the latest in a series of monthly discussions with Harvard Business Review authors on topics of interest to IT managers.

Create Stories to Match the Situation

IF YOUR PURPOSE IS . . .	USE A STORY THAT . . .	BE SURE TO . . .	EXPECT RESPONSES SUCH AS . . .
Sparking action	Tells how change was implemented in the past and allows listeners to imagine how it might work in their situation.	Avoid too much detail. It can take listeners' minds off their own challenges.	"Just imagine . . ." "What if . . ."
Fostering collaboration	Movingly recounts a situation that listeners have also experienced and that prompts them to share their own stories on the topic.	Provide time for people to swap stories and have an action plan ready to tap the energy the exchange will unleash.	"That reminds me of the time . . ." "Hey, I've got a story like that."
Squelching rumors	Highlights, possibly through humor, some aspect of the rumor that shows it to be unlikely.	Avoid being mean-spirited and make sure the rumor really is false.	"No kidding!" "I hadn't thought about it like that."
Sharing a vision	Evokes the future you want to create, without providing too much detail that may turn out to be wrong.	Be confident of your storytelling skills. Otherwise, use a story in which the past serves as a springboard to the future.	"When do we start?" "Let's do it!"

Career Watch

Mary Finlay

Q&A

TITLE: Deputy CIO
COMPANY: Partners HealthCare System Inc., Boston
WHAT SHE DOES: Heads IT for a group of 10 hospitals employing a total of 1,100 IT professionals. A 2001 graduate of the Society for Information Management's Regional Leadership Forum, Finlay is a firm believer in the critical importance of the soft skills the forum focuses on. Since the RLF was launched in 1992, more than 1,200 IT professionals have graduated and many of them are now CIOs at top organizations, including Cigna Corp. and Sharp Electronics Corp.

How do SIM's Regional Leadership Forums work? A forum meets every six weeks for two days, over a period of about eight months. Throughout that time, we read about 35 books focused on a range of topics. Speakers come in to facilitate peer-to-peer discussions. The main purpose of the forum is to take a holistic view of leadership. You spend very little time talking about technology. It's more about the skills you need as an IT leader, which range from thinking about IT governance and measuring value to negotiations and softer skills, such as building relationships with the executive team, communications and professional networking.

In such a tight economy, has the emphasis on soft skills for IT personnel fallen off somewhat? There has been a greater emphasis lately on how to do more with less, and there has been more of a demand for financial skills and the ability to deal with regulators. But at the end of the day, if you're in an IT senior-level position, you have to be able to get up in front of a room of people and sell ideas and negotiate for what's important. I haven't seen that go by the wayside.

How about managing people? What an IT person wants from a manager is to know that the manager cares about their success and professional development. At the bare minimum, I have my directors ask all of their reports what they want to do next and how the director can help them get there. That question should be integral to ongoing discussions with direct reports. If a person feels a manager doesn't care about them as a person and a professional, that person will leave the company.

What do you consider the most important nontechnical skills that IT leaders should develop? Relationship skills, including how to build relationships with your functional counterparts and others on the executive team, and communications skills. You need to write well and speak well. One of the things they had us do in the Regional Leadership Forum is prepare and give our "elevator speech." That's the speech you give when the CEO gets in the elevator and you have three minutes to convey what you're doing. Always have that elevator speech in your back pocket. **46441**

– Julia King

NUMBERS CRUNCH: Workplace Relationship Issues

50%	Percentage of employees who report missing time from work due to rude workplace behavior directed toward them
42%	Percentage of time the average manager spends dealing with interpersonal conflicts
50%	Percentage by which poorly managed workgroups are less productive
44%	Percentage by which poorly managed workgroups are less profitable

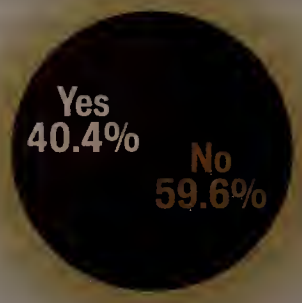
SOURCES: WWW.WORKRELATIONSHIPS.COM, WWW.BADBOSSOLOGY.COM; 2004

Worth Noting

"People don't leave a company, they leave a manager. The costs for an employee who resigns due to interpersonal relationship problems are extensive; some studies indicate that the costs are up to three times the departing employee's annual salary. In addition, there are other costs involved, such as hiring and training for the replacement position.

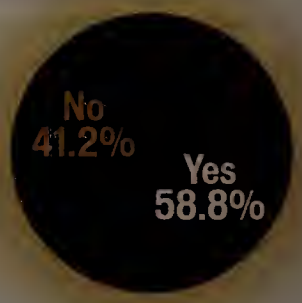
– WWW.WORKRELATIONSHIPS.COM

I have been a victim of workplace bullying.



BASE: 418 workers polled online between November 2002 and March 2003

I have observed someone else being bullied in the workplace.



BASE: 417 workers

SOURCE: THE BUSINESS RESEARCH LAB LLC, HOUSTON

CONFLICT MANAGEMENT is a huge issue for all managers but especially for IT managers, since most IT work is performed by teams, says Craig Runde, director of new program development at the Leadership Development Institute at Eckerd College in St. Petersburg, Fla. "It's mostly a matter of knowing how to deal with differences," says Runde.

Eckerd researchers surveyed 300 managers, their bosses, peers and direct reports and came up with a "very strong statistical correlation" between qualities associated with leadership and various constructive behaviors in dealing with conflict. "Things like putting yourself in the other person's shoes and reaching out to people in a positive [rather than a] blaming [way] are both constructive behaviors associated with leadership," Runde says. Destructive behaviors include displaying anger toward others and retaliating. "To the extent that you want to build leadership [skills], you have to [encourage] constructive [ways of] managing conflict," Runde says. In IT management, adds Runde, [people] are [quick to] jump to conclusions. As a result, [they] may not [be] open-minded [enough] to [hear] other [points of view].

SOFT SKILLS FOR IT ONLINE RESOURCES
www.simnet.org
www.workrelationships.com
www.shrm.org
www.badbossology.com

BRIEFS

McClintock to Lead Arch Insurance IT

Scott McClintock has been promoted to senior vice president and CIO at Arch Insurance Group, a division of Arch Capital Group Ltd., a Bermuda-based reinsurance company. McClintock will establish a long-term IT architecture for Arch and implement business unit efficiency initiatives. He joined Arch in 2002.

Nextel Boosts EDS Contract by $100M

Electronic Data Systems Corp. announced that it has amended its current five-year master services agreement with Reston, Va.-based Nextel Communications Inc. to cover additional applications development and hosting services, increasing the contract's value by about $100 million. Under the 2001 agreement, Plano, Texas-based EDS provided Nextel with comprehensive IT services, including data center, database administration, disaster recovery and help desk functions.

BP CIO Joins MapInfo Board

MapInfo Corp., a provider of location-based business intelligence software in Troy, N.Y., announced the appointment of Simon J. Orebi Gann to its board of directors. Orebi Gann is currently CIO at BP PLC's integrated supply and trading business and is vice president of digital and communications technology.

Saab Signs Entopia

Saab AB, a maker of defense electronics in Stockholm, has chosen K-Bus from Entopia Inc. in Redwood Shores, Calif., to help improve worldwide information-sharing and collaboration. K-Bus facilitates the consolidation of unstructured data from multiple sources such as databases, Internet sites, intranets and e-mail systems.

BART PERKINS

Risk/Reward Contracts: Laying the Foundations

UNDER THE RIGHT CIRCUMSTANCES, risk/reward contracts can provide significant benefits to both buyers and sellers [QuickLink 45728]. Because these contracts withhold a significant percentage of the fees until the project is successfully completed, they offer a way to share both risks and rewards with your supplier. Risk/reward contracts are more complex to negotiate and manage, however, and require careful consideration. Here are some steps you can take to minimize difficulties.

BART PERKINS is managing partner at Leverage Partners Inc. in Louisville, Ky., which helps CIOs manage their IT suppliers. He was CIO at Tricon Global Restaurants Inc. and Dole Food Co. Contact him at BartPerkins@LeveragePartners.com.

Determine whether you have a good candidate for a risk/reward contract. Do this before you pursue contract negotiations. Risk/reward contracts work best with:

- High-risk projects with significant business benefits. Use risk/reward only when the potential benefits warrant the additional effort.
- Established suppliers. Because of the complexity of these contracts, you will do better if you select a supplier with an excellent track record, preferably one you already have a strong relationship with.
- Companies with strong internal relationships. Risk/reward contracts require significant internal cooperation and work best in companies where legal, finance and HR departments already have a strong working relationship with IT.

Use clear metrics. The success of your risk/reward contract will depend on it. These measures form the basis for determining whether additional financial payments are warranted. They are particularly necessary in multiyear contracts, where management changes are almost sure to occur. Having clear metrics can help you avoid being at the mercy of widely differing interpretations of whether success has been achieved.

- Choose metrics that reward specific behavior. For example, metrics for a new application might specify an average response time of two seconds. If you want to eliminate large deviations in response times, add a related metric specifying that 95% of the transactions will take place within one to three seconds.
- Develop metrics to eliminate arguments with suppliers regarding whether their incentive payments should be made. Clear metrics remove ambiguity. Imprecise measures are often subject to debate.
- Design metrics carefully. Poorly designed or insufficient measures may result in unintended consequences or give suppliers the ability to play games with the numbers. One company tried to motivate data entry operators by paying a bonus for more than a certain number of keystrokes per hour. The operators soon learned they could "increase productivity" by repeatedly tapping a single key.

Define counterbalancing measures of success. Make sure that your metrics take into account and accurately reflect multiple goals. For example, if the only measure of success is response time, a systems integrator might require faster processors and higher bandwidth, thereby making the ongoing operating costs higher than they should be.

Get interdepartmental support early.

- Finance. Since benefits often accrue over several budget years, the finance staff will need to accept multiyear "at risk" accruals that represent contingent liabilities on the balance sheet (i.e., payments you will make only if the vendor performs well). In some cases, it may take several years to construct and install a new system and start reaping the benefits. Finance will need to accrue potential additional payments as soon as the endeavor starts, rather than waiting until the end and being surprised by the total fees.
- Legal. In addition to normal contract terms, you will need to negotiate special situations. For example, if your risk/reward endeavor is canceled through no fault of the supplier (e.g., your company is acquired and the new owner decides to shut down the project), the supplier will want to be paid some portion of the potential additional fees it might have received at normal project completion.
- HR. Some internal incentive programs may need to be adjusted. Suppose, for example, you construct a joint project team in which everyone works hard to deliver the project early. If the systems integrator's staff gets a bonus and your HR policies forbid you to pay a bonus to your staff, that could create resentment.

Risk/reward contracts require more preparation, precision and cooperation. But when they are used appropriately, they motivate suppliers to deliver successfully. This leverage serves as an insurance policy against failure and provides incentives for joint success.

46411

WANT OUR OPINION?

For more columns and links to our archives, go to **www.computerworld.com/opinions**

How does your rack really stack up?

Take the APC Rack Challenge and find out how the New NetShelter® VX outperforms your brand.

Whether you are consolidating servers, relocating your data center, or centralizing distributed networks, selecting the right brand of enclosure is crucial to successful implementation. Take the APC Rack Challenge today to make sure your facts and your racks really stack up.

THE APC RACK CHALLENGE

Name: Title:

Company: Phone:

Address:

How many racks do you currently have installed?

Features to expect in today's IT rack enclosures	NetShelter® VX (AR2101BLK) no side panels	Compaq Rack 10000 Series (245161-B21) no side panels	Your rack brand here:
Integrated rear power distribution channels that provide zero-U, toolless mounting of basic, metered, and switched rack-mount power distribution units.	✓	✗	○
Integrated rear cable management channels that allow efficient cable routing and easily accessible cable containment.	✓	✗	○
Available with scalable cooling options to support heat densities up to 7.5kW*.	✓	✗	○
Exceeds major server requirements for front door ventilation.	✓	✓	○
Meets or exceeds warranty requirements for all major servers.	✓	✓	○
InfraStruXure compatible. Seamlessly integrates into APC's modular, manageable, pre-engineered data center architecture.	✓	✗	○
Vendor neutral rack configurator designed to support most third party servers and networking devices.	✓	✗	○
5-year warranty	✓	✗	○
"Fits Like a Glove"** money back guarantee that all IT equipment will fit in the rack.	✓ GUARANTEED COMPATIBILITY	✗	○
Compare! Savings of almost 40%	$1039	$1359†	$

Yes! I took the APC RACK CHALLENGE! ✓

Designed specifically for the cabling, cooling and security demands of today's IT environments, the NetShelter® VX is a complete infrastructure compatible with a full range of integrated APC components. Vendor-neutral, all you need to add are the servers of your choice.

NetworkAIR™ RM Air Distribution Unit

Unique 2U rack-mounted fan unit delivers additional cool air and improves circulation.

1U Rack-mount LCD Monitor/Keyboard Drawer

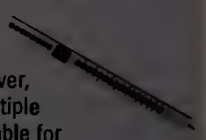
Maximizes space in data center environments.

Environmental Monitoring Unit

Monitors ambient temperature, humidity and other environmental conditions in racks.

Rack-mount PDU

Provides up to 5.7kW of power, eliminating the need for multiple outlet strips per rack. Available for both single- and 3-phase input power.



** Based on APC Internal Research and testing. ** See link on promotions page for terms and conditions. † Source of average pricing: www.HP.com. Prices may vary or change from time to time. Not applicable to other SKU's or models.*

1 TAKE THE RACK CHALLENGE TODAY!

Online
http://promo.apc.com • Key Code q525y

By Fax:
1) Fill in your business information, indicate your rack brand of choice, and check off the applicable fields.
2) Fax the completed Rack Challenge to the following number:
Fax 401-788-2797

2 RECEIVE YOUR FREE T-SHIRT

Be one of the first 100 respondents and receive a FREE "I took the APC Rack Challenge" T-shirt!

APC
Legendary Reliability®

©2004 American Power Conversion Corporation. All Trademarks are the property of their owners • Call: 888-289-APCC x6701 E-mail: esupport@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA • NS1A4EF-USa

Advertising Supplement

IT Careers in Boston

Without doubt the Boston metro area has been among those most hard hit by the downturn in the technology economy. The telecommunications sector, in particular, continues to see problems, and Terra Lycos has announced additional layoffs and a lowered price on the sale of its Lycos.com operation. Similarly, the financial services sector has stumbled, with the buyout of John Hancock by Canada's Manulife Financial Corp.

However, Boston continues to market itself to the high tech world based on its access to a strong workforce, universities and existing business base. Further evidence can be found in close to $100 million in venture capital and federal grants for early stage companies and an uptick in job listings at companies ranging from Staples Inc. to Partners HealthCare. Boston.com — a business newsletter for the region — continues to follow the financial fortunes of an emerging new technology community, the Boston Life Sciences 20. The Life Sciences 20 includes companies such as Boston Scientific, Charles River Laboratories, Biogen Idec, Millennium Pharmaceuticals, PerkinElmer and Transkaryotic Therapies.

Partners HealthCare — parent company for The Children's Hospital, Beth Israel Deaconess Medical Center, Brigham & Women's Hospital and Massachusetts General — has 50 information technology jobs currently listed.

In addition to some of the longer-term pharmaceutical and life sciences companies, the area boasts of a dozen new start-up companies. These include Biomeasure Inc., Nexcelom Bioscience and Agencourt, which recently received a $30 million grant from National Human Genome Research. Biomeasure, which is now a division of French pharmaceutical company Ipsen, is building a new 38,000-square-foot factory. The Boston Tech Center, a 345,000-square-foot facility, is under construction and also will provide needed office and lab space for Boston's growing biotech and life sciences industry.

Raytheon, one of the long-term corporate headquarters in the area, is also on a hiring cycle. Currently, the corporation lists 10 jobs in the information systems area supporting its businesses. More importantly, the corporation has posted 75 job openings during quarter one for software engineers, architecture developers and systems engineers to work on security and defense contracts.

Staples Inc. also continues its push in using technology to reach customers and improve operations. The high tech research community in the Boston area is also showing some improvement. Forrester Research has shown stable performance over the last six months. IDC, a division of IDG — parent company to Computerworld, InfoWorld and NetworkWorld — is hiring research analysts, particularly in the areas of healthcare and life sciences.

For more information about IT Careers advertising, please contact: Nancy Percival
Vice President, Recruitment Advertising
800.762.2977
500 Old Connecticut Path
Framingham, MA 01701
Produced by Carole R. Hedden

Engineering Development Manager-Offshore : For tech transfer life cycle mgmt co., manage offshore res & devel projects, incl. offshore embedded sys & appl specific integrated circuit (ASIC) solutions div. in India & offshore team of developers & researchers; project plan, exec, implmnt & test at client sites. Req's: Bach's in Comp Engg, Comp Sci or a rel. field. 3 yrs exp in job offered or 3 yrs exp as a Comp Sys Analyst in offshore devel envt. Exp must incl. embedded, enterprise, networking & comm & image processing solutions. Prof in 32 bit RISC/CISC, Hitachi SH/HS, ARM 7TDMI/9TDMI, DSP-TI & AD (TMS320), Windows CE, ITRON, pSOS, VxWorks, C OS II, C Linux, Trimedia SDE, Lauterbach TRACE 32 for Hitachi SH, ARM developer Ste, Red Hat Embedded Tool Ste & Platform Builder. Overseas travel required. 40hrs/wk. Send res. to E-5, P.O. Box 1924, Phila., PA 19105.

PROGRAMMER/ANALYST to analyze, design, develop and maintain client/server and web-based application software using Java, J2EE, Java Script, Java Bean, Applets, JSP, Servlets, EJB, WebLogic, XML, HTML, SQL Server and Oracle under Windows NT and UNIX operating systems. Require: Bachelor's degree in Computer Science, an Engineering discipline, or a closely related field with 2 yrs of exp in the job offered or as a Systems Analyst. Extensive travel on assignment to various client sites within the US is required. Competitive salary offered. Send resume to: John Watson, Venturi Technology Partners, 9428 Baymeadows Rd, Ste 500, Jacksonville, FL 32256; Attn: Job AA.

Sr. Cons. for b/z reqs. analysis, process optimizn, plan, dzn, s'ware dev., test & systems integrn. PM for system & applns. S'ware dev., opernl. CRM (Sales, Svc, Mktng), Collaborative CRM (CTI, Customer Contact Center) & Analytical CRM (Reporting, ROI) projs. Evaluate CRM (Clarify 12.0, Siebel, HP Service Desk 4.5, & Kintana 5.0). Conduct infrastructure scalability assessments & implement CRM & ERP based ERP system for Cust relationship mgmt, GL, HRMS, A/c Payable & T & L Modules. implement Clarify eFrontOffice V12, ClearSales, ClearSupport, CBO/eBusiness Framework, ClearContracts, Clear CallCenter & Clarity/Nortel CTI solutions. Proposals, presentations, client mgmt, project tech lead & execution. Lead sols design & development, lead teams, proj delivery, client relation & tech team deliveries. BS in CS + 5 yr exp. in job duties OR 5 yr exp in IT PM, Internet tech. & ERP. Must be Clarify CRM Prof. and Six Sigma green belt certified. Comp. salary. Apply: Unilinx, 4625 Alexander Dr., # 110, Alpharetta, GA 30022 with proof of perm. Work authzn.

PROGRAMMER ANALYSTS for Worth, IL office. Design & Develop software applications using Oracle, XML, UML, C++, Sybase, Interwoven, Coolgen, ClearCase, ClearQuest, PVCS, UNIX. Bachelors or Equivalent req'd in Computers, Engineering, Math or related field of study +1 yr of related exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Compro Consulting Group, Inc., 7179 West,111th St, Worth, IL 60482.

Computer Professionals (Multiple Openings)

Software Engineer/Systems Analyst/Database Administrator/Network Administrator Milwaukee, WI. Must have bachelors degree or equivalent and experience in some of the following skills: C/C++, Java, Web Methods, Cold Fusion, Microsoft Technologies (Visual Basic, .NET, ASP) CRM (Siebel, Clarify, Vantive), Middle Ware Technologies (Orbix, Corba, Tibco, Vitria) Data Ware Housing Tools (Informatica, Data Stage, Abinitio, Business Objects, Cognos, Micro Strategy, Brio) ERP (SAP, People Soft, Oracle Apps, Baan), Mainframe (Cobol, CICS, JCL, VSAM) AS400, Ecommerce, Databases (SQL Server/Oracle/DB2/Sybase), Microsoft Windows(95/98/NT/2000,Exchange), UNIX (Sun Solaris, HP, AIX), Linux and QA (Win Runner, Load Runner, Silk, Quickpro, Manual Testing).**Position requirement: Must be willing to travel and /or relocate per project specification.**Mail your resumes to: jobs@iksolutionsinc.com or Human Resource Director, IK Solutions Inc, 1840 N. Farwell Ave, Suite # 306, Milwaukee, WI 53202.

System Administrator required for Burtonsville, MD office. Design & maintain LAN, WAN, Network Segment, Internet/Intranet Systems; Install & maintain Exchange Servers, Multiplexes, Line Drivers, modems, scanners, D-link hubs, cabling and other hardware. Bachelors req'd in Computers, Engineering + 2 yrs of exp. 40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Childway/KIO Services Inc., 4058 Blackburn Lane, Burtonsville, MD 20866.

Technical Support Analyst

Experience: Minimum 3 years recent experience in a similar position

PCS has an opening for a Technical Support Analyst based in Chicago, Illinois. The selected candidate must have a minimum of a bachelors degree in Electronics or Management Information Systems or Computer Science or Computer related field or equivalent. A minimum of 3 years of recent experience in a similar position is required.

Job Description: The job requires the employee to possess a minimum of 3 years recent work experience in a similar position. Prior experience with designing and implementing solutions for extending systems management capabilities of CA-Unicenter TNG for different types of non-IT devices is mandatory. Must possess work experience using Wireless Devices (Vast, Opto22, Ion Networks, Badger and Nokia) and integration of these devices with CA-Unicenter TNG. Prior experience implementing CA-Unicenter TNG and related suites of Enterprise Systems Management products and software required.

Additional work responsibilities involve performing systems support, computer operating systems configuration, perform systems support and configure TCP/IP and computer networks, **Require prior work experience working on Windows, windows2000 server, Windows 2000 advanced server, Linux, Novell platform.** routers, gateways, LANS/WANS and firewalls. Responsible for in-house systems administration, network management, e-mail management, LAN, VPN, remote access management and providing for in-house users and external clients.

The job responsibility requires travel as required. Please send your resume and cover letter to: Human Resources, Professional Consulting Services, Inc., 1415 North Dayton, #3S, Chicago, IL 60622.

Consultant Systems Analyst will develop leading edge testing methodology to stress test next generation high volume (1+ million users) financial applications built on WebLogic middleware using custom developed LoadRunner virtual users. Will deliver application performance and system resource profiles of all application components. Will analyze applications and characterize performance of systems to identify bottlenecks. Will conceptualize and execute test plan for stress, stability, unit and load/performance testing with a user population of 13 million customers for both web-based and client/server applications. Will assist clients in validating multiple architecture recommendations and in the selection of a cost-effective solution that meets performance and capacity requirements for branch network and future capacity projections. Requires Bachelor of Science or equivalent in Computer Science, Engineering, Math, or Physics and one (1) year in job offered OR one (1) year experience in systems integration and performance testing. Candidate must possess demonstrated expertise in high volume capacity planning, forecasting and performance testing using LoadRunner; demonstrated expertise in performance and cost analysis of web architecture and network configuration; and demonstrated expertise in capacity planning and future forecasting using Interscope. Candidate must also be Certified Product Specialist in the Mercury Interactive LoadRunner tool. Salary: $87,975/yr, M-F, 9AM-5PM. Send 2 resumes to Case #200203581, Labor Exchange Office, 19 Staniford St., 1st fl., Boston, MA 02114. EOE. Applicants must be U.S. workers eligible to accept full-time employment in U.S.

Software Engineer - Applications. Sought by Englewood Colorado consulting company to work in various unanticipated locations throughout the U.S. Duties: Develop, create and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. Analyze and design databases with an application area. Use of Visual Basic, XML, UML, SQL Server 2000, DB2, SQL, C++, COBOL. Reqs. Masters or equivalent in Computer Science, Computer Engineering, Engineering (any field) or related field. Plus 1 yeer in the job offered or 1 year in e releted occupetion, including Systems Anelyst, Programmer Analyst or Applications Developer. $73,231 /year, 40/hrs/wk, 8AM-4PM. Respond by resume to WORKFORCE DEVELOPMENT PROGRAMS, PO Box 46547, Denver, CO 80202, end refer to Job Order No. CO5075643.

PROGRAMMER ANALYSTS req'd for Raleigh, NC office. Design & Develop software applications using C, C++, VB, Delphi, ASP, XML, UML, Coolgen, Interwoven, Oracle, PL/SQL, Developer 2000 & Designer 2000; Bachelors or Equivelent req'd In Computers, Engineering, math or related field of study + 1 yr of related exp. 40 hrs/wk. Must have legal euthority to work permanently in the U.S. Send resume to HR Manager, Allied Business Consulting, Inc., 8700 W.Bryn Mewr, Suite 800 South, Chicago, IL 60631.

Software Engineer wanted to analyze software reqts. & produce functional specification documents & implement software; create test specs. for new subsystems; analyze & reengineer software legacy system; provide mgmnt. w/effort estimations & implementation trade offs; apply software design patterns in C++ environment; design software using UML, Visual C++, C++, COM/DCOM, ATL & STL; modify real time multi-threaded framework adapter to support COM/DCOM; design the interfaces between different subsystems to reduce dependency & boost development process; develop COM/DCOM code generator to generate ActiveX automation components using Rhapsody & ATL tech.; optimize software for performance & memory, GDI handles & other system resources using Visual Quantify, Purify & PC-Lint; develop configuration mgmnt. adapters for ClearCase, MKS, VSS, PVCS Version manager, on Windows & UNIX oper. systems; assist customers & customer support team. Must have Bach. deg. in Comp. Sci. or related field & 4 yrs. software development exper., incl. exper. with software modeling techniques & UML, exper. with C++, MFC & COM tech. incl. internals of COM/DCOM & ActiveX tech., & exper. w/configuration mgmnt. tools incl. Rational/ClearCase & MKS/Source Integrity as well as expertise in multi-threaded programming concepts & development. Salary $93,209/yr. Send 2 resumes to Case#200204206, Div. of Career Services, Labor Certification Unit, 19 Staniford St., 1st fl., Boston, MA 02114.

IT PROFESSIONALS

Consultant

(Glen Mills, Pennsylvania and other locations through the U.S.). Under the supervision of Senior Consultants, Managers, and Senior Managers, assist in providing consulting services for implementation, testing, development, maintenance and enhancement of software packages and applications. Design software packages. Utilize Rational Rose to design system architecture in Unified Modeling language (UML). Utilize Rational ClearCase, Rational ClearQuest, Adoba Photoshop, Adobe Illustrator, Micromedia Dreamweaver, Micromedia Flash, Microsoft Frontpage, Visual Interdev, and Homesite to develop programming logic and web interfaces. Conduct quality assurance testing of software applications. Create and maintain systems documentation.

Salary $60,000 per year. Mon-Fri, 9:00 am to 5:00 pm. The position requires: Bachelor's degree or equivalent in Computer Science, Engineering (any), Information Systems or Business Administration + 2 years of experience in the job offered or 2 years of experience as a Systems Analyst, Consultant or Developer. Related experience must include at least six months of experience in Adobe Photoshop, Micromedia Flash, Microsoft Frontpage, and Visual Interdev.

Please send your resume, referencing Job Order Number **WEB-415747** to the: PA Careerlink, FLC Unit, 235 W. Chelten Avenue, Philadelphia, PA 19144. EOE.

PROGRAMMER ANALYSTS for Charlotte, NC office. Develop software applications using VB, Crystal Reports, Delphi, ASP, XML, Coolgen, Interwoven; Develop client/server applications in Oracle, PL/SQL, Developer 2000 & Designer 2000. Bachelors or Equivalent req'd In Computers, Engineering, Math or related field of study +1 yr of related exp.40 hrs/wk. Must have legal authority to work permanently in the U.S. Send resume to HR Manager, Masterminds Global Solutions, LLC, 6000 Fairview Roed, #1200, Charlotte, NC 28210.

Systems Analyst
Analyze, design, and deploy customized IT solutions based on a client's needs and business environment. Must have Bachelors Degree or foreign equiv. in Computer Science or in a related field & 1 yr. exp. or 1 yr. exp. in a related position w/ebility to use: OS Windows, C#, MDX, OLAP, and XML and must be willing to travel and relocate. 40.0 hrs./wk 9:00 AM - 6:00 PM. **Applicants send cover letter and resume to:**
SRA Systems, 1945 Cliff Valley Way, Suite 270, Atlanta, GA 30329, **Attn: S. Srinivasan.**

Radiant Soft Sol, Inc., a S/ware Consulting Co. seeks to fill following Multiple Openings in Arlington Hts, IL & unanticipated locs in US:

Sr. Software Consultants (BS+3 yrs exp), Business/ Systems/ Programmer/QA Analysts (BS + 2yrs exp.), Database Analysts (BS+3yrs exp.), Network Analysts (BS+ 3yrs. exp.) & IT Managers (BS + 3yrs supervisory exp).

Respond by resume to HR, 855 E. Golf Rd, #1125, Arlington Hts, IL 60005.

Engineer (New York, NY): Develop/implement introspective & self-adaptive hardware & software sys. Design, implement & evaluate new program representations. Consult w/ engineers & clients to enhance reliability, scalability & performance. Design systems & techniques to map applications on architectures. Must have M.S. in Comp. Sci. or Elec. Eng., plus 1 yr. specific experience. Send resume to Melanie Peters, Business Manager, Reservoir Labs, Inc., 632 Broadway, Suite 803, New York, NY 10012.

Programmer Analyst in NYC to analyze, dsgn, create prgms & dvlp s/ware prgms & systms using Java, C++, JSP, Oracle, ASP, VB & VBScript. Req. Bach. in Engg. Comp. Sci/equiv. + 2 yrs exp in field. Will accept any combination of ed., training, exp, which will meet min. req. Resp. to Ganesh International, Rajesh Kalra, 12 W. 27th St. 2nd Fl., NY NY 10001. Fax: 212-779-1616 E-Mail: careersusa@crawtsys.com

Quality Eng. wanted by company engaged in graphics and multimedia technology design, manufacturing and marketing. Requires Bach. in CS or EE plus 3 yrs exp. including min. 2 yrs. audio/video software. Reply to ATI Research, Inc. H.R. Dept., Attn: K.B., 62 Forest Street, Marlborough, MA 01752.

Sr. Network Engineer/Administrator wented by macro-political consultancy co. in NYC, NY. Must have a min. of a Bachelor's degree or foreign equiv. in Computer Sci., Engineering, Business or related and 1 yr. exp. in job offered or as a Network Administrator. In lieu of a Bachelor's degree, the employer will accept an equivelent combination of formal university education and work experience in network administration. Send resume to Catherine Vitale @ Medley Global Advisors, LLC, 451 Greenwich St, 6th Fl., NYC, NY 10013.

Prog. Analysts to analyze, design/develop s/w appls using Java, JavaScript, VBScript, ASP, HTML, Weblogic, Oracle, SQL, COBOL, DB2, CICS under Windows, UNIX & MVS OS; perform unit, functional, integration, regression and systems level testing; analyze user reqs, prepare design documents; develop & enhance online & batch programs; implement, install, test, debug and modify new/existing appls. Require: BS or foreign equiv. in CS/Engg. (any branch) & 2 yrs exp. in IT. Travel involved. High Salary. F/T. Resumes to: HR, Global IT Solutions USI, Inc., 600 Stevens Port Drive, Ste 125, Dakota Dunes, SD 57049.

Sales Eng'g. - Present & sell comm. & recording equip. to clients. Req'd: 10 yrs. exp. in job or software, sys., or test eng'g job & exp. w/ LAN/WAN, Windows NT, CTI, CRM and PSAP. Resumes: NICE Systems, Inc., 301 Route 17 North, 10th Floor, Rutherford, NJ 07070. Attn: G. Farese.

Programmer Analysts to analyze, design, develop appls using: C, VB, JavaScript, HTML/DHTML, EJB, JSP, ASP, Servlet, UML, Oracle, SQL under Windows OS; perform initial study of req and provide feedback; provide on site maintenance support, debug, modify, fine tune and perform code optimization. Require: BS or foreign equiv. in CS/Engg.(any branch) & 2 yrs of exp. in IT. High Salary. Travel Involved. F/T. Positions available in Elgin, IL and Lower Gwynedd, PA. Resume to: HR, Fourth Technologies, Inc., 1108 N. Bethlehem Pike, Suite 8, Lower Gwynedd, PA 19002. Specify location desired on resume.

Programmer Analysts (multiple positions) sought by a New Jersey-based s/ware consulting firm. Must have Bach in Comp Sci., Engg or equiv and one yr relevant exp. Respond to: HR Dept., AK Systems, Inc., 100 Metroplex Drive, Suite 303, Edison, NJ 08817.

Programmer Analyst needed w/exp to analyze, design, develop, test & implement interfaces & custom solutions using C, Pro*C, PL/SQL, Oracle Forms & Reports, Oracle Clinical & Documentum on Windows. Send resumes to: Soft Tech Source - Ramesh Sarva CPA, P.C. 16 Murray Guard Dr., Jackson, TN 38305.

Information Overload?

Take a break at itcareers.com and take the hassle out of job searching!

www.itcareers.com

You can find a better JOB with one hand tied behind your back.

Just point your mouse to the world's best IT careers site, powered by CareerJournal.com

Check us out at: www.itcareers.com or call (800) 762-2977

Database Developer

Develop, test and maintain web-based database applications using SQL server 2000, Access 97/2000, VB 6.0, SQL, JavaScript, .NET, C/C++ and Crystal Reports. Req. Master's degree in Comp. Sci. or closely related field & proficiency in SQL, .Net, VB6 and Crystal Report. 40 hrs/wk. Send resume /w cover letter to Cindy Dyer, Global Vision Technologies, Inc. 900 Rutger, St. Louis, MO 63104. Fax: (314) 436-9245. Ref. Code: mowz.

VP, Research & Development
Lead the vision & technology innovation effort incl. research & development of new products; product development support, budgeting/scheduling; quality assurance & shipping; specify engineering requirements; manage Research, Development, Product Mgmt., Quality Assurance & Tech. Support teams; spokesperson for tech. matters; prepare reports & implement policies communicated by the Board & Exec. Mgmt. Req. PhD in Elec. Eng. or related & 2 yrs exp. in job or 2 yrs. exp. as VP Engineering. Resume to HR, Netuitive 12700 Sunrise Valley Dr., Reston, VA 20191. No calls please.

Vayusa Inc., a pioneering mobile payment and loyalty systems developer, seeks an Information Systems Director to lead its technology development and strategy. Must have MS in Comp. Sci. or related field & 3yrs exp. To apply send resume to: Patrick Binkley, VP Engineering, Vayusa Inc., 61 Chapel St. Newton, MA 02458.

Multiple Positions; 8a-5p; 40hrs/wk

(A) Programmer Analyst: Analyze, dvlp, implmt, prgm using C, C++, Perl, Oracle DB2, UNIX & systms analysis & dsgn method.

(B) Tech Supp Spec: Analyze project; assign & coord work; review, test prgm for compatibility; perform web hosting; troubleshoot, debug & provide tech support/updates using Java, J2EE, EJB, Perl, Oracle, ObjectStore, WebLogic, UNIX.

(C) Technical Supp Spec: Analyze project; assign & coord work; review, test prgm for compatibility; perform web hosting; troubleshoot, debug & provide tech support/updates using Visual Studio.NET, ASP.NET, ADO.NET, C Sharp, Visual Source Safe, Oracle, Crystal Reports.NET

Must have 1 yr exp in job offd or as IT professional using comp skills listed for position AND Bach or equiv in Comp Sci/Engg; Electrical, Electronics, Mech or related Engg; Info Tech, Mgmt Info Systms, Commerce, Bus Admin/Mgmt or related field. Send resume (indicating job applying for) to Concept S & S, Inc., 109 E. 17th St., Ste #12, Cheyenne, WY 82001.

Senior Consultant

(Glen Mills, PA and other company + client locations throughout the United States) Responsible for Merger and Acquisition (M&A) integration implementation in the High Technology and Consumer Retail Industries. Responsible for supply chain process design in the Manufacturing Industry. Responsible for the implementation of SAP R/3 Variant Configuration. Responsible for implementation of Oracle Financial Suite. Responsible for design of web-based Knowledge Management tools and design and implementation utilizing Microsoft Access based supply chain tools.

Salary: $105,000/year. Work schedule is M-F 9am-5pm. Position requires: Bachelor's degree or equivalent in Computer Science, Math, Business Administration, Engineering or Info Systems plus 3 years experience in the job offered in related occupation of Senior Consultant, Consultant, Associate, Programmer, Analyst, or Management Analyst. Experience in offered position or related occupation must include at least 2 years of experience with SAP R/3 Variant Configuration, Oracle Financial Suite, Microsoft Access, and M&A integration.

Please send your resume, referencing Job Order Number **WEB 415770** to: PA CareerLink, FLC Unit, 235 W. Chelten Ave., Philadelphia. PA 19144. EOE.

Software Engineers:Consultants needed for database programming, Internet programming or Systems side programming Will help clients design, develop, program, and test software implemented on client server technology. The main technologies involved are databases (Oracle), datawarehousing tools (Business objects, Informatica, Cognos), and Internet programming languages (Java, JDBC) or System programming languages (C and C++). Must have 5 yrs. exp. as software engineer or in a related field.

Unix Administrators:Consultants also needed for network implementation and administration, system integration, backup, and recoveries, shell scripting and system securities. Knowledge of management of enterprise network storages devices (SAN and NAS), HP and Solaris Serves, Swithches, HUBs and in Veritas NebBackup Systems. 5 yrs. experience as Unix Systems Administrator or related field.

Req. for both positions: Clients are located in 9 states. Candidates must be willing to move from location to location for assignment durations that varies from 3 mos. to year. Email CV to rtroff@tnscinc.com, Rona Troff, HR Mgr of TechNation Software Consulting, Inc., or mail to 300 N. Dakota Avenue, #505B, Sioux Falls, SD 57104.

Tietronix Software, Inc. (Houston, TX) is seeking Software Developer. 1 yr. exp. in using UML, J2EE, Oracle, SQL Server, XML, Bourne, C Shell Scripting, Rational Rose, Netbeans, Visual Café, Quantify & Purify on Windows, & Solaris. Send resume to 1331 Gemini Ave., #300, Houston, TX 77058, Attn: HR, or email to info@tietronix.com.

ClickFind, Inc. (Bryan, TX) is seeking Computer Programmer for medical contract research industry. 1 yr. related exp. Send resume to 110 North Main Street, Bryan, TX 77803. Attn: Jennifer Fox.

TEES Information System (College Station, TX): is seeking Systems Analyst. B.S. in Computer Science with 3 mon. related exp. using AppleScript, Appletalk, and MAC OS. Send resume to 3579 TAMU, College Station, TX 77843. Attn: Catherine Yancy.

Pro-Tem, Inc. (League City, TX) is seeking Application Developer/Analyst. 1 yr. exp. in using VB, MFC, Oracle, data sampling, embedded coding, and dosimetry computation. Send resume to 2525 South Shore Blvd., #401, League City, TX 77573. email: human.resource@pti-sys.com. Attn: Human Resources.

Technosol Technologies, LLC.,: Systems Analysts: Architect & Test Multi-Tier Enterprise Applications using VB.NET, XML, Web Services, PB, C++, UML, Rational Rose, J2EE, Jaguar CTS and EAI technologies using database in Oracle, Sybase and SQL Server. Req. Degree in Comp. Science or related field, 2 yrs exp. Send resume to: 2606 Peninsulas Dr. Missouri City, TX 77459 or email: technosol@technosoltech.com

Graphic Designer. Design & edit graphics in consultation w/production personnel based on appearance, design-function relationship, budget, price, costs & client specification. Build simulated graphic models using Photoshop, Illustrator, & Quark. Req: Bachelor of Fine Arts in Graphic Design. 40hrs/wk. Job/Interview Site: Laguna Niguel, CA 92677. Send resume to Chapman Walters Intercoastal Corp. @ P.O. Box 7242, Laguna Niguel, CA 92607.

Computer Information Support Specialist: wanted by travel management marketing firm in Miami, FL. Applicants must investigate computer software and hardware problems of users. Applicant must have a Bachelors of Science in Computer Engineering and 1 yr. of exp. in the field. Mail resumes only to 4950 SW 72nd Avenue, 2nd Floor, Miami, FL 33155. Attention: Tammy Gonzalez.

Programmer (Roswell, GA): Analyze, dsgn, test & maintain GUIs; dvlp Telephony, Internet & telecommunications Database Systems using Visual C++, Green Leaf, Dialogic SDK, etc. Req. B. Sc. in C.S. or its foreign degree equiv. No exp req but must demo ability to perform job through at least course/or project work w/ Visual C++ & Green Leaf. Resume w/ transcript to President, New Century Telecom Inc. 8180 Greensboro Dr. #700, McLean, VA 22102

Multimedia Web Developer. Consults w/ design, technical, & marketing staff to plan web site dev. Develops graphic & technical architecture of web sites including database design & user interface design. Req Bach. in Advertising or Related Field & 1 yr. of exp. in job or 1 yr. of exp. as a Graphic Designer/ Visualizer. Send Resume: Steven Cohen, Tempart, Inc., 412 SE 13th St., Fort Lauderdale, FL 33316 (jobsite).

Infogen is seeking IT professionals to design applications for clients using Oracle9i, Weblogic / WebSphere, C++, Visual C++, VB, COM, STL, MTS, MSMQ, ASP, Java, HTML, XML, MTS, MSMQ, ADO, UML. Min BS, travel is required. Send resume to infojobs@infogeninc.com. EOE.

Leapers, a fast growing international trade company, looks for System Analyst, DBA to design and maintain customer management system (CMS), warehouse management system (WMS), supply chain management system (SCM), back order/stage order management system (BKM). BS & exp required. EOE.

DatamanUSA, LLC, a Software Consulting Co. seeks qualified IT Professionals for dsgn, dvlpmt, testing & implmtn of s/ware & database systms. B.S. in Comp Sci, Eng., a related field or equiv w/3 yrs. exp. Applicants must be willing to relocate/travel to various unanticipated locs throughout US. Mail resume to Attn. HR, 315A West Lincoln Way, Ste 15, Cheyenne, WY 82001 or email to jobs_wy@DatamanUSA.com.

Dynamic Systems, Inc.
Programmer/Systems Analyst/Business Analyst
For Lansdale, PA or North Brunswick, NJ

Internet:Java,JSP,EJB,WebSphere,WebLogic,Perl/CGI,VB, ASP,C##, ASP.NET Or VB.NET. **Admin**:AIX,HP-UX, Solaris,Unix,Oracle,Sybase,DB2,Informix or SQL Server. **Skills**:RDBMS, Unix,VC++,C,C++,AS/400,RPG, IBM MF Cobol, DB2,Clintrial, Oracle Clinical Or SAS.
job@dynamicsystems-inc.com
525 Milltown Rd, #107, N. Brunswick, NJ 08902; 650 N Cannon Ave, Lansdale, PA 19446. Phone: 732-246-2297; Fax:732-246-3362.
www.dynamicsystems-inc.com

A Fairfax, VA based Company seeking qualified Programmers/ Analysts/Software Engineers/IT Project Managers poss. MS/BS or equiv and/or relevant work experience. Duties incl.. working with at least 3 of the following: Java, Java Servlets, Oracle, Versata, HTML, XML, Java Script, Websphere, Rational Rose, PowerBuilder FoxPro and SQL Server. Send res. refs. and sal. req. to: Prescient Infotech Inc., 11130 Main Street, Suite 100 E1, Fairfax, VA 22030.

Programmer Analyst. Design & Develop S/W to computerize the payroll on DOS, Win 95, 98 & NT, w/the use of PL/SQL, ASP3.0, SQL Server 7.0, HTML, DHTML. Visual Interdev, Frontpage, VB, Java Script & VB Script. Req: BS in Comp. Sci/Comp. Eng/Electrical Eng. 40 hrs/wk. Job/Interview Site: Lake Havasu City, AZ. Send Resume to Desert Payroll Services Inc. @ P.O. Box 3058, Lake Havasu, AZ 86405-3058.

Senior Engineer (Portland, OR): Develop & implement introspective & self-adaptive hardware & software sys. Design, implement, & evaluate new program representations. Consult w/ teams & clients to enhance reliability, scalability & performance of advanced computer system. Supervise project team & engineers to devise solutions. Min. req's: Ph.D. in Comp. Sci. or Elec. Eng. Plus 1 yr. specialized experience. Send resume to Melanie Peters, Business Manager, Reservoir Labs, Inc., 632 Broadway, Suite 803, New York, NY 10012.

System Analyst. Design, develop, test, code, implement and maintain computer systems and perform programming to meet project requirements for Risk Management Department; design and develop ETL process to upload data from OLTP system to Star Schema; develop interface process to transfer data between Loan Servicing and FACS; use Oracle 7.x, 8.05, SQL Server, Crystal Reports. Require 3-yr college & 2-yr exp as Programmer or IT Consultant. Related exp must include using Oracle 7.x, 8.05, SQL Server, Crystal Reports. 40hrs/wk, 8-5pm, $72k/yr. Send resumes to PO Box 11170, Detroit, MI 48202, reference # 230072. Employer paid Ad.

SurajSoft Inc. is hiring System Admin Managers. Send resume to 304 Town and Country Village Sunnyvale CA 94086. May be placed at client sites nationwide.

IT Education & Training Directory

Contact the companies listed below to help you with your training needs!

To place your ad please call 800-762-2977

IPexpert, Inc.
(866) 225-8064
www.ipexpert.com
CCIE (R&S, SEC, and C&S), CCSP, CCNP, CCNA, IP Telephony

CBT Nuggets
(888) 507-6283 & (541) 284-5522
www.cbtnuggets.com
Affordable training videos on CD MCSE, MCDBA, MCSD, CCNA, Citrix, Linux, A+, Net +

Need two Programmer/Analyst(s) to analyze, design, develop, test, implement, maintain and support application software in a multi-platform environment (Unix/Windows/Sun Solaris) on a large scale client/server and web-based systems using C++, C, Java, JSP, PERL, HTML, Visual Basic, PowerBuilder, Oracle, Business Objects, CORBA, RMI, TCP/IP Socket programming, Netscape Application Server, Netscape Application Builder, Weblogic, Require Bachelor's degree or equivalent with 4 years of relevant experience. Extensive travel on assignments to various client sites within US is required. Competitive salary offered. Apply by resume to Ravi Kandimalla, Everest Computers, Inc., 875 Old Roswell Road, Suite E 400, Roswell, GA 30076. Attn: JobGR.

Multiple openings for software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in ASP.NET, SQL Server 2000, T-SQL, XML and VSS. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of ASP.NET, SQL Server 2000, T-SQL, XML and VSS. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Site Administrator, Greene County CareerLink, 4 West High Street, Waynesburg, PA 15370, Job No. WEB416004.

Computer

Household International, headquartered in Prospect Heights, IL, has an opening for a Consultant Business Systems working in the USA.

We offer competitive compensation and benefits. Please fax resume to 831-755-6528, Attn: Job Code PHCBS.
EOE M/F/D/V

Need two Programmer/Analyst(s) responsible for PeopleSoft Financials full cycle implementations, development, support, customizations, interfaces, legacy system conversion and reporting tools in an Oracle/Unix environment. Require Bachelor's degree or equivalent with 5 years of relevant experience. Extensive travel on assignments to various client sites within US is required. Competitive salary offered. Apply by resume to Ravi Kandimalla, Everest Computers, Inc., 875 Old Roswell Road, Suite E 400, Roswell, GA 30076. Attn: JobKR.

Sr. Software Engineer (with Bachelors degree and 5 years experience) - Job entails and requires experience in team management and design and development of applications including financial/banking applications using Oracle, DB2, FoxPro, C, C++, ProC, JSP and EJB. Relocation within USA Possible. Attractive compensation package. Send resume to Sally Ronquillo, Cybernet Software Systems Inc., 3031 Tisch Way, Suite 1002, San Jose, CA 95128.

Resource Assistance has opportunities for Programmers, Programmer Analysts, Systems Analysts, Software Engineers, DBA's and Software Consultants with three or more of the following skills:
Java, Shell Scripts, SAS, PLC, Textra, XML, SQL, DB2, mqPCX, Oracle, PowerBuilder, Rational Rose, Sybase, Perl, VBScript, Visual Basic, SQL, Crystal Reports & IIS.
BS or MS depending on position. 1 or 2 yrs exp reqd. depending on position We also accept the foreign edu. equiv. of the degree, or any suitable comb of edu., training or exp. Frequent travel and relocation. Positions avail in NJ & IL. Send confidential résumé and salary requirements to: Resource Assistance, Inc., 230 North Avenue West, Westfield, NJ 07091.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Developer 2000, Oracle 9i, PL/SQL, Forms 6i and SQL*Loader. Requirements: Bachelor's Degree or equivalent (from an accredited or unaccredited university) in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Developer 2000, Oracle 9i, PL/SQL, Forms 6i and SQL*Loader. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Manager, Butler County CareerLink, Pullman Commerce Center, 112 Hollywood Drive, Suite 101, Butler, PA 16001, Job No. WEB416023.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in VB.NET, C#, PVCS, SourceSafe, SQL, Sybase and MTS. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of VB.NET, C#, PVCS, SourceSafe, SQL, Sybase and MTS. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mon Valley Regional CareerLink, Attn: Actg. CL Program Supervisor, Donora Industrial Park, 570 Galiffa Drive, Donora, PA 15033, Job No. WEB415970.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in VB.NET, COM, XML, XSL, SQL, DHTML and XPath. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of VB.NET, COM, XML, XSL, SQL, DHTML and XPath. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours week, involves extensive travel and frequent relocation. Apply: Site Manager, Armstrong County CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201, Job No. WEB415966.

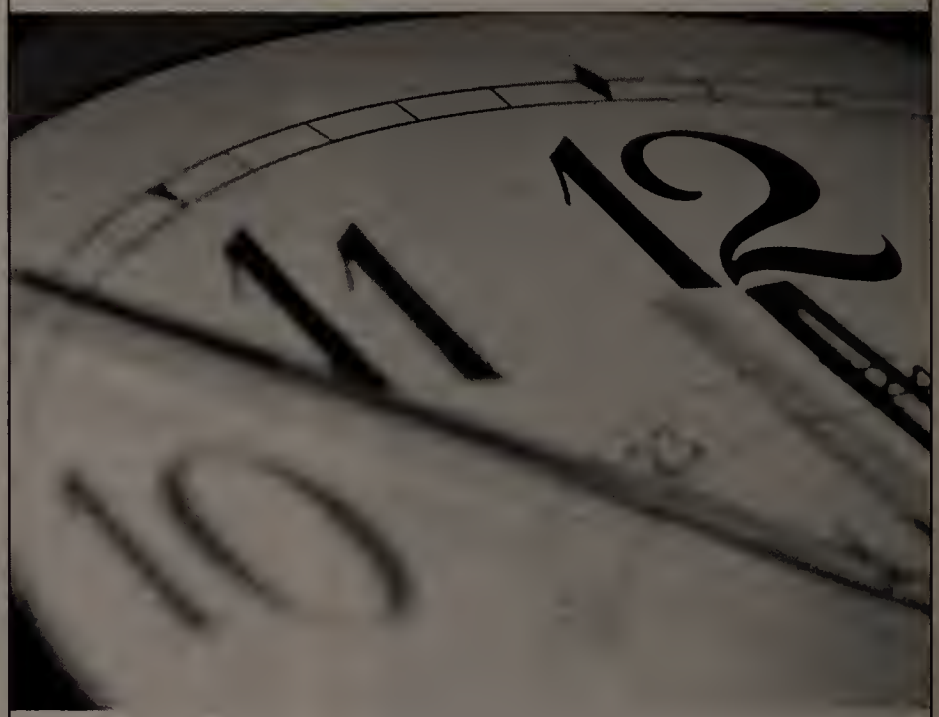
SOFTWARE ENGINEER to design, develop and implement web-based application software and databases using Java, J2EE, JMS, Java Mail API, EJB, JNI, JDBC, XML, JavaScript, Weblogic, WebSphere, Struts, Ant, log4j, MS SQL Server, UML, OOAD, Rational Rose, MS Access and MS Visio on Windows XP/2000, Linux and UNIX platforms; Test applications manually and automatically using WinRunner and LoadRunner. Require: M.S. degree in Computer Science/Engineering, Mathematics, or a closely related field with 2 yrs. of exp in the job offered or as a Systems Analyst. Extensive travel on assignments to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Sophie Mookerji, Software Paradigms International, Inc., 3901 Roswell Rd, Ste 134, Marietta, GA 30062; Attn: Job SG.

SENIOR SOFTWARE ENGINEER to design, develop and test application software using C, C++, COBOL, Shell Scripting, Perl, VC++, Java, XML, XSLT, Novell eDirectory, Novell DirXML, Oblix NetPoint, IBM MQSeries, BEA's Tuxedo Transaction Manager, Oracle, Oracle XSU, Rational Rose and Clearcase under SUN Solaris and HP-UX operating systems; Mentor junior programmers and engineers. Require: B.S. Computer Science, an Engineering discipline, or a closely related field with 5 yrs of progressively responsible exp in the job offered or as a Systems Engineer or Programmer. Extensive travel on assignment to various client sites within the U.S. is required. Competitive salary offered. Apply by resume to: Kondala R. Maddala, Apkon Systems, Inc., 1366 Valmont Trace, Marietta, GA 30066; Attn: Job NH.

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Sybase, Oracle, WebLogic and Visual Studio .NET. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Sybase, Oracle, WebLogic and Visual Studio .NET. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: BECS/CareerLink Program Supervisor, Indiana County CareerLink, 300 Indian Springs Road, Indiana, PA 15701, Job No. WEB415974.

NETWORK SYSTEMS ENGINEER to administer, design, install, configure, maintain and trouble-shoot LAN/WAN under Windows and Linux operating systems; Responsible for network performance, hardware optimization and client/server performance tuning; Assign IP addresses, install and configure software, client machines and peripherals to the network; Design and implement protocols, topologies, passive hubs, switches, and other network related technology. Require: B.S. degree in Computer Science, Info Technology, or a closely related field with 1 yr of exp in the job offered or as a Systems Administrator, or Computer Systems Engineer. Competitive salary offered. Apply by resume to: Eduardo Santos, Noble Systems Corporation, 4151 Ashford Dunwoody Road, Suite 550, Atlanta, GA 30319; Attn: Job PF.

The World
Of Work Is Changing
Every Week.



Luckily, We Are Too!

itcareers.com is
the IT career site everyone
is talking about.

Now Powered by
CareerJournal.com

Post your job openings
here at:
www.itcareers.com

or call:
(800) 762-2977

www.itcareers.com

is the place where your fellow readers are getting a jump on even more of the world's best jobs.

Now combined with CareerJournal.com, you have more jobs to choose from.

Stop in for a visit and see for yourself at:

www.itcareers.com

Sr. Application Programmer - Migrate MS SQL 6.5 & ACCESS database to MS SOL 7/2000. Convert & reprogram current FORTH & ACCESS front end applications to Visual Basic 6.0. Migrate DOS flat file database to MS Database Engine format. Design & develop reports, MS Word & Excel merge templates for MS SOL database. Design & test user installation programs including various Windows environment. BS in Computer or related field + 2 yrs. as Programmer utilizing MS SQL6.5 & Visual Basic. Attn: Stella Chang, OMTI, 2901 Wilcrest Dr., Suite 211, Houston, TX 77042, Email: employment@omti.com.

Cressanda Solutions Inc. has openings for Programmer Analysts for locs in PA & elsewhere w/at least 1 yr exp in any of following skills: AutoCAD, C, C++, Visual C++, ActiveX, MS Access, COM, Oracle, Developer 2000, VB, ASP, HTML, JavaScript, IIS, Crystal Reports & SOL Server. Some positions req Bach in Comp. Sci. or Engg. & some req. at least 4 yrs. exp In IT field. Must have legal auth to work in US. Excellent pay & benefits. Mail resume w/proof of work status to: hrus@cressanda.com

itcareers.com can solve the labyrinth of job hunting by matching the right IT skills with the right IT position. Find out more at: www.itcareers.com

Prosoft

PROSOFT TECHNOLOGY GROUP, INC. has immediate, full-time multiple opportunities for experienced Programmers, Programmer Analysts, Systems Analysts, System Administrator and Database Administrators with a BS or MS depending on position and minimum of one year experience in any of the following skills:

EAI/B2B Integration, webMethods (Integration Server, Broker, Mainframe Integration Server, WorkFlow)

SAP R/3 Functional Modules, ABAP/4, Basis, BW, EBP/SRM, APO, SEM, CRM, SAP Business One, SAP Portals and SAP Net Weaver

J2EE Technologies, Web Logic, Web Sphere and IPlanet, XML, Web services frame work (SOAP), WSDL, UDDI, Microsoft .Net or SeeBeyond 5.x

Peoplesoft and Oracle - Applications

Database Administration - Oracle and SQL

Enterprise Reporting- Actuate, Crystal Reports and Data Warehousing

We also accept the foreign edu. equiv. All positions require frequent travel and relocation throughout the U.S. Send confidential résumé and salary requirements to Ref # Pete - 2004 Attn: HR Manager, Prosoft Technology Group, Inc., 2001 Butterfield Road, Suite 1050 Downers Grove, IL 60515.

Visit our website at: www.prosoftgroup.com.

Consultant (Multiple positions). Req. Bach.'s degree or higher in CS, Eng., or rel. field (or equlv. foreign educ.) & 3 yrs.' exp. in client/server s/ware devel. using OOP concepts & methodologies. Stated exp. must incl. 1 yr. in each of the following: creating interfaces, reports, stand-alone applications, stored procedures, & extensions for Facets integrated delivery system; & exp. with 5 of the following: Java, C++, J2EE, EC Gateway, Xml, Oracle, SQL, & Sybase. Consult with healthcare industry clients to analyze & define application design reqs. & review expected design performance & costs to predict overall feasibility. 40 hrs./wk. Apply with resume to: The TriZetto Group, Inc., Attn: Human Resources, 2801 Gateway Dr., Ste. 140, Irving, TX 75063.

Seek Level I & II Computer Programmers/Software Engr w/ strong communication skills & any of following skills: VB/PB, SOL & any database, VB.Net, AS/400, RPG/400, COBOL/400, CL, Visual C++ or C++, NT Admin., JAVA/HTML/CGI, PERL, Oracle/Sybase/SOL Developers & DBAs, Lotus notes, Domino and ERP packages. Level I: B.S. degree and 2-3 years exp. Level II: M.S. or B.S. and 5 yrs. exp. Experience should include design, development, testing and implementation of commercial systems. Assignments may be anywhere in the U.S. Travel required. Forward resumes to Manager@MilestoneConsulting.com, 8625 NW, 8 street, Suite 422, Miami, FL 33126.

Software Engineer to analysis, design, develop, test, implement and support PeopleSoft's web architecture global ERP Solutions; as a technical lead develop solutions throughout the project's life-cycle with hands on experience in SQRs, security, LDAP, Informix, Oracle, and PL/SQL. Bachelor Degree and 5 years in full-cycle experience for HR, PY, AP, GL, T&L, PO, BI and SS. Send Resume to Datum Software Inc. Attn: HR, 6525 The Corners Parkway, Suite 312, Norcross, GA 30092.

Pinnacle Talent, Inc. has immediate, full-time opportunities for:

Software Engineers, To research, design, and develop computer software systems, in conjunction with hardware product development, applying principles and techniques of computer science, engineering, and mathematical analysis, formulate and design software system, will use a variety of software tools including; PowerBuilder, TPF, Sybase, Perl, Solaris, Java, Corba. Master's degree or foreign edu. equiv. of same and 1yr exp. required

Systems Analyst to analyze user requirements, procedures, and problems to automate processing or to improve existing computer system: review computer system capabilities study existing information processing systems, develop new systems to improve production will use a variety of software tools including; SAP R/3, ABAP/4, Apache, Java, JDBC Oracle, PL/SOL, Servlets, Rational Rose. Master's degree or foreign edu. equiv. of same and 1yr exp. required

Programmer Analysts to plan, develop, test, and document computer programs, applying knowledge of programming techniques and computer systems: evaluate user request for new or modified program, formulate plan outlining steps required to develop program, using structured analysis and design. Design new code/program or replace, delete, or modify existing code/program to meet client needs, will use a variety of software tools including; SAP R/3, ABAP/4, Cobol, C, Fortran, Visual Basic, Oracle, Pascal, Solaris. Bachelor's degree or foreign edu. equiv. of same and 1yr exp. required

For some positions, we also accept the degree equivalent in edu. and exp. Travel and/or relocation required. Send confidential résumé, salary requirements and position applying for to: Pinnacle Talent, Inc. Attn: HR 1919, Midwest Road, Suite 210, Oakbrook IL 60523.

Software Engineer. Job location: Indianapolis, IN. Duties: Ana-lyze, design & develop appls., customize programs & enhance user appeal & appl. utility for healthcare cos. using Cold Fusion, Dreamweaver, Java & Oracle. Perform appl. testing, configuration, system analysis & client interaction. Also resp. for prog. using XSL, CSS, LDAP, Oracle, SOL Server & others. Perform full life cycle develop. of system. Requires: B.S. (or foreign equiv.) in Comp. Sci., Eng. or related field & 3 yrs. exp. in the job offered or 3 yrs. exp. as a Prog/Analyst, Analyst or Prog. Concurrent exp. must incl: 3 yrs. exp. designing & developing appls. for healthcare cos. using ColdFusion & Oracle. Mail resume (no calls) to: Wendell Tankersley, CTG, Inc., 5875 Castle Creek Pkwy., Indianapo-lis, IN 46250-4328.

Multiple openings for software engineers to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise In .NET, UML, SOL Server, C# and XML. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of .NET, UML, SOL Server, C# and XML. Salary: $70,242/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Fayette County CareerLink, Attn: CareerLink Program Supervisor, 135 Waylan Smith Drive, Uniontown, PA 15401, Job No. WEB416010.

Hexaware Technologies, Inc. has immediate, full-time opportunities for:

Software Engineers, To research, design and develop computer software systems, in conjunction with hardware product development, applying principles and techniques of computer science, engineering and mathematical analysis, formulate and design software system, will use a variety of software tools including; PowerBuilder, TPF, Sybase, Perl, Solaris, Java, Corba. Master's degree or foreign edu. equiv. of same and 1yr exp. required.

Systems Analyst to analyze user requirements, procedures and problems to automate processing or to improve existing computer system: review computer system capabilities study existing information processing systems, develop new systems to improve production will use a variety of software tools including; Apache, Java, JDBC Oracle, PL/SOL, Servlets, Rational Rose. Bachelor's degree or foreign edu. equiv. of same and 1yr exp. required.

Programmer Analysts to plan, develop, test and document computer programs, applying knowledge of programming techniques and computer systems: evaluate user request for new or modified program, formulate plan outlining steps required to develop program, using structured analysis and design. Design new code/program or replace, delete, or modify existing code/program to meet client needs, will use a variety of software tools including; Cobol, C, Fortran, Visual Basic, Oracle, Solaris. Bachelor's degree or foreign edu. equiv. of same and 1yr exp. required.

Technical Sales Managers to direct/manage sales of the company's IT consulting services, interact with clients to determine technical specifications and oversee initiation and development of offshore projects. Master's degree in Business Administration or Management plus 1 year of experience in the IT industry. Experience must have included business development initiatives and off-shore project execution in the fields of ERP (SAP/ PeopleSoft Applications) or financial services or insurance services or transportation industry.

For some positions, we will also accept the degree equivalent in edu. and exp. Travel and/or relocation required. Send confidential résumé, salary requirements and position applying for to: Hexaware Technologies, Inc. Attn: HR, 4343 Commerce Court, Suite 618, Lisle, IL 60532.

Intellysis Technology is a fast growing Chicago based IT consulting group with clients all over the USA in leading edge areas such as eCommerce, ERP, Automated Testing and Client Server MultiTier Systems. Intellysis is looking for Programmer Analysts, System Analyst, Computer Programmers, Software Developers and Project Managers with experience in one or more of the following skills:

C++, C, VC++,
Java/Java Web Server, Java Script
VB, VB Script, ASP, ActiveX, COM, DCOM
CGI, Servlets, CORBA, Perl
VJ++
HTML, DHTML, XML
JAVA APPLETS
COLD FUSION, HTTP
SEGUE/RADVIEW TOOLS
Large Scale System Design/ Architecture Testing Experience

All jobs require a minimum of a Bachelors Degree or equivalent in Computer Science or related fields + 1yr. exp. reqd. depending on position.

Project Managers require a Masters in Business Administration or its equivalent. Frequent travel and/or relocation. If you are interested in our company. please mail, fax or e-mail your resume including reference number CW0504 to: INTELLISYS TECHNOLOGY, LLC., 600 Enterprise Dr, Ste 208, Oak Brook, IL 60523; fax (630) 455-1333.
e-mail: *recruit@7hillsys.com*

How to Contact COMPUTERWORLD

We invite readers to call or write with their comments and ideas. It is best to submit ideas to one of the department editors and the appropriate beat reporter.

Maryfran Johnson,
editor in chief
(508) 820-8179

DEPARTMENT EDITDRS

Don Tennant, News editor.....(508) 620-7714
Craig Stedman, assistant News editor.....(508) 820-8120
Mitch Betts, Features editor.....(301) 262-8243
Tommy Peterson, Technology editor.....(508) 620-7729
Kathleen Melymuka, Management editor.....(508) 820-8118

REPORTERS

Bob Brewin, mobile computing/wireless; Intel PCs and servers; health care.....(505) 425-3551
Matt Hamblen, networking; network systems management; e-commerce; CA.....(508) 820-8567
Thomas Hoffman, information economics; IT investment and management issues; careers/labor.....(845) 988-9630
Lucas Mearian, financial services; storage; IT management.....(508) 820-8215
Linda Rosencrance, general assignment; transportation/carriers.....(508) 628-4734
Carol Sliwa, Microsoft; Web services technologies; application development; retail industry.....(508) 628-4731
Marc L. Songini, ERP; supply chain; CRM; databases; data warehousing; EAI.....(508) 820-8182
Patrick Thibodeau, enterprise systems; outsourcing and immigration issues; corporate antitrust issues.....(202) 333-2448
Dan Verton, federal/state government; legislation; critical-infrastructure security; travel.....(703) 321-2277
Jaikumar Vijayan, corporate security/privacy issues; manufacturing.....(630) 978-8390
Todd R. Weiss, general assignment; Linux; messaging/collaboration.....(717) 560-5255

OPINIONS

Jamie Eckle, Opinions editor.....(508) 820-8202
Frank Hayes, senior news columnist.....(503) 252-0100

FEATURES

Ellen Fanning, special projects editor.....(508) 820-8204
Robert L. Mitchell, senior editor.....(508) 820-8177
Mark Hall, editor at large.....(503) 391-1158
Gary H. Anthes, national correspondent.....(703) 536-9233
Julia King, national correspondent.....(610) 532-7599

CDMPUTERWORLD.COM

Tom Monahan, online director.....(508) 820-8218
Sharon Machlis, managing editor/online.....(508) 820-8231
Ken Mingis, online news editor.....(508) 820-8545
Marian Prokop, online editor at large.....(508) 620-7717
David Ramel, e-mail newsletter/online editor at large.....(508) 820-8269
John R. Brillon, associate art director.....(508) 820-8216
David Waugh, associate art director.....(508) 820-8142
Peter Smith, Web development manager
Kevin Gerich, Mark Savery, Web developers
Bill Rigby, associate Web developer
Matthew Moring, graphics designer

RESEARCH

Mari Keefe, research manager
Gussie Wilson, research associate

COPY DESK

Michele Lee DeFilippo, managing editor/production.....(508) 820-8126
Bob Rawson, assistant managing editor/production.....(508) 271-8015
Mike Parent, Monica Sambataro, senior copy editors
Eugene Demaitre, copy editor

ORAPHIC DESION

Stephanie Faucher, design director.....(508) 820-8235
April O'Connor, associate art director
Julie Quinn, senior designer
Susan Cahill, graphics coordinator
John Klossner, cartoonist

ADMINISTRATIVE SUPPDRT

Linda Gorgone, office manager.....(508) 820-8176
Cheryl Dudek, administrative assistant.....(508) 820- 8178

CONTRIBUTINO COLUMNISTS

Pimm Fox, Michael Gartenberg, Dan Gillmor, Paul Glen, Barbara Gomolski, Thornton A. May, David Moschella, Bart Perkins, Nicholas Petreley, Paul A. Strassmann

CONTRIBUTINO WRITERS

Mary Brandel, Russell Kay, Saml Lais, Robert L. Scheier, Steve Ulfelder

GENERAL INFORMATION

TELEPHONE/FAX
Main phone number.... (5D8) 879-07D0
All editors unless otherwise noted below
Main fax number..... (508) 875-8931
24-hour news tip line... (508) 620-7716

E-MAIL
Our Web address is **www.computerworld.com.**
Staff members' e-mail follows this form: **firstname_lastname@computerworld.com.**
For IDG News Service correspondents: **firstname_lastname@idg.com.**

LETTERS TO THE EDITOR
Letters to the editor are welcome and should be sent to: **letters@computerworld.com.**
Include your address and telephone number.

MAIL ADDRESS
PO Box 9171, 5D0 Old Connecticut Path, Framingham, Mass. D1701

SUBSCRIPTIONS/BACK ISSUES
Subscription rates: U.S., $99.99/year; Canada, $130/year; Central and South America, $250/year; all others, $295/year
Phone..... (888) 559-7327
E-mail..... cw@omeda.com
Back issues..... (5D8) 820-8167

REPRINTS/PERMISSIONS
Contact.....Renee Smith
Phone.....(717) 399-19DD, ext. 172
E-mail.....reprints@computerworld.com
Visit **www.reprintbuyer.com** to obtain quotes and order reprints online.

COMPANIES IN THIS ISSUE

Page number refers to page on which story begins. Company names can also be searched at **www.computerworld.com.**

ACCENTURE LTD. . . . 8
ADVANCED MICRO DEVICES INC. . 12
AIRDEFENSE INC. . . 1
AIRESPACE INC. . . 10
AIRMAGNET INC . . 28
ALBERTA TREASURY BRANCHES . 14
ALCATEL . . . 10
ALLINA HOSPITALS & CLINICS . . . 31
AMERICAN EXPRESS CO. . . 12, 46
APPLE COMPUTER INC. . . 17, 26
APREO INC . . . 30
ARAO TECHNOLOGIES LTO. . . 16
ARC AOVISORY GROUP INC. . . 14
ARCH CAPITAL GROUP LTO . . . 37
ARCH INSURANCE GROUP. . . 37
ASCENTIAL SOFTWARE CORP . . 8
BBC TECHNOLOGY HOLDINGS LTO. . . 8
BEA SYSTEMS INC. . . 24
BIGFIX INC . . 12
BLUETOOTH SPECIAL INTEREST GROUP . 1
BOSE CORP . . 14, 17
BP PLC . . 37
BRITISH BROADCASTING CORP . 8
BROADLANE INC . 31
BURTON GROUP. . 21
CAPGEMINI . . 7
CARNEGIE MELLON UNIVERSITY . 12
CERT COORDINATION CENTER. . 12
CIGNA CORP. . . 36
CISCO SYSTEMS INC. . 8, 10, 21, 22
CITIBANK . . 46
COMMERCEQUEST INC. . . 8
COMPUTER ASSOCIATES INTERNATIONAL INC . 6
COMPUTER SCIENCES CORP . 8
CONROS CORP . 7
CONVERGYS CORP. . . 8
COYOTE POINT SYSTEMS INC. . . 8
CREOIT SUISSE FIRST BOSTON LLC. . . 1
CRESCENOO AMERICAS INC. . . 8
DATAQUEST INC. . . 8
OELL INC. . . 8
DELTA AIR LINES INC. . . 8, 34
DELTA TECHNOLOGY INC. . . 34
DIEBOLO ELECTION SYSTEMS . . 1
DOLE FOOO CO . . 37
OOW CORNING CORP. . . 14
EASI ENGINEERING GMBH. . . 26
EBAY INC. . . 8
ECKERO COLLEGE . . 38
EEYE OIGITAL SECURITY. . . 12
ELECTRONIC OATA SYSTEMS CORP. . . 37
ENTERPRISE APPLICATIONS CONSULTING . . 14
ENTOPIA INC. . . 37
ERNST & YOUNG . . 16
EXACT SOFTWARE NORTH AMERICA. . . 30
FARM BUREAU CASUALTY INSURANCE CO. . . 6
FARPOINT GROUP . . 10
FEOERAL RESERVE BOARD. . . 1
FEOERAL TRAOE COMMISSION . . 10
FIRSTLOGIC INC. . . 8
FLORIDA CA USERS GROUP . . 8
FOLEY & LARONER LLP . 10, 16
FOOTE PARTNERS LLC . . 28
FORO MOTOR CO. . . 7
FORESCOUT TECHNOLOGIES INC. . . 18
GARTNER INC. . . 7, 24, 25, 34
HALLIBURTON CO. . . 14
HANDYSOFT GLOBAL CORP . 8
HART INTERCIVIC INC. . . 1
HEALTHCARE FINANCIAL MANAGEMENT ASSOCIATION . . 31
HEWLETT-PACKARO CO. . . 7, 15
HOMEBANC CORP. . . 1
HOSPITAL LOGISTICS INC. . . 31
IBM . . 1, 14, 24
IBM RESEARCH . . 26
ICOS CORP. . . 8
IOC . . 16, 31, 32
IOEFENSE INC. . . 12
INFOEXPRESS INC. . . 21
INFORMATION IMPACT INTERNATIONAL INC. . . 8
INFORMATION TECHNOLOGY ASSOCIATION OF AMERICA . . 1
INFOSEC LAW GROUP . . 10
INTEL CORP. . . 8, 12
JAVA COMMUNITY PROCESS. . . 26
JOHNS HOPKINS UNIVERSITY. . . 1
LAWSON SOFTWARE INC. . . 31
LEAPFROG SERVICES INC. . . 1
LEHMAN BROTHERS HOLDINGS INC. . . 46
LEVERAGE PARTNERS INC. . . 37
LEXMARK INTERNATIONAL INC. . . 7, 12
LIFE SAFETY SYSTEMS INC. . . 18
MAGAL SECURITY SYSTEMS LTD . . 18
MAPINFO CORP. . . 37
META GROUP INC. . . 1
MICROSOFT CORP . . 8, 8, 12, 14, 15, 24, 30
MIT . . 1
MOZILLA FOUNOATION . . 15
NASOAQ STOCK MARKET INC. . . 1
NATIONAL ASSOCIATION OF SECURITIES DEALERS INC. . . 1
NEC CORP. . . 10
NETLINE COMMUNICATIONS TECHNOLOGIES LTO. . . 16
NETSCALER INC. . . 8, 15
NETWORK ASSOCIATES INC. . . 21, 22
NEW JERSEY STATE POLICE. . . 15
NEW YORK STOCK EXCHANGE INC. . . 1
NEXTEL COMMUNICATIONS INC. . . 37
NOKIA CORP. . . 1
NORTEL NETWORKS LTO. . . 10
NOVELL INC. . . 6, 15
NUCLEUS RESEARCH INC. . . 14
OFFICE OF THE COMPTROLLER OF THE CURRENCY . . 1
ORACLE CORP. . . 24
ORGANIZATION FOR THE ADVANCEMENT OF STRUCTURED INFORMATION STANDARDS. . . 25
PALMONE INC. . . 17
PARTNERS HEALTHCARE SYSTEM INC. . . 36
PEEL REGIONAL POLICE. . . 6
PEOPLESOFT INC. . . 24
PLUMTREE SOFTWARE INC. . . 24
RED HAT INC. . . 15
REOLINE NETWORKS INC. . . 8
REO-M LTO. . . 1
RICOH CORP. . . 12
SAAB AB. . . 37
SANRAO INC. . . 18
SAP AG. . . 8, 14, 24
SAP AMERICA INC. . . 14
SARA LEE COFFEE & TEA NORTH AMERICA . . 21
SARA LEE/OE. . . 21
SECURITIES INOUSTRY ASSOCIATION . . 1
SENNHEISER ELECTRONIC GMBH . . 17
SHARED HEALTHCARE SUPPLY SERVICES . . 31
SHARP ELECTRONICS CORP. . . 36
SIEBEL SYSTEMS INC. . . 14
SIEMENS AG . . 8
SMARTDISK CORP. . . 17
SOCIETY FOR INFORMATION MANAGEMENT . . 36
SONY ERICSSON MOBILE COMMUNICATIONS AB . . 1
SUN MICROSYSTEMS INC. . . 7
SUNNYBROOK AND WOMEN'S HOSPITAL . . 31
SUSE LINUX AG. . . 16
SUTTER HEALTH . . 10
SYGATE INC. . . 21
SYMANTEC CORP. . . 21, 22
SYMBOL TECHNOLOGIES INC. . . 10
TANDEMSEVEN INC. . . 24
TECSYS INC. . . 31
TERRA NOVA TRADING LLC. . . 21
THE BURTON GROUP . . 22
THE BUSINESS RESEARCH LAB LLC . . 38
THE SCO GROUP INC. . . 8, 30
THIINC LOGISTICS INC. . . 31
TRENO MICRO INC. . . 21, 22
TRICON GLOBAL RESTAURANTS INC. . . 37
TRIPOS INC. . . 12, 21
TRW AUTOMOTIVE HOLOINGS CORP. . . 12
U.S. OEPARTMENT OF HOMELANO SECURITY . . 8
U.S. OEPARTMENT OF JUSTICE . . 8
U.S. OEPARTMENT OF THE TREASURY . 1
U.S. ELECTION ASSISTANCE COMMISSION . . 1
U.S. SECURITIES ANO EXCHANGE COMMISSION . . 1
UNIVERSITY HEALTH NETWORK . . 31
UNIVERSITY OF CALIFORNIA, LOS ANGELES. . . 16
USCL CORP. . . 18
VIGNETTE CORP. . . 24
VINSON & ELKINS LLP. . . 7
VOCERA COMMUNICATIONS INC. . . 10
VOYENCE INC. . . 30
WAL-MART STORES INC. . . 7, 31
WATERFIELO OESIGNS . . 17
WEBSENSE INC. . . 21
WELLS' OAIRY INC. . . 21
WELLS FARGO & CO. . . 24
WHIRLPOOL CORP. . . 24
WORLD BANK . . 35
ZONE LABS INC. . . 21

ADVERTISER'S INDEX

American Power Conversion . . 38
www.apcc.com
888-289-APCC
AT&T . . 32/33
www.att.com
Enterasys Networks . . 13
www.enterasys.com
F5 Networks . . 29*
www.f5.com
Finisar . . 47
www.finisar.com
Hewlett-Packard Integrity . . 2, 3, 4
www.hp.com
Hewlett-Packard Proliant . . 27
www.hp.com
IBM eServer . . 18-
www.ibm.com
InterSystems Caché . . 20
www.intersystems.com
IT Executive Summit Network Consolidation . . 33
www.itexecutivesummit.com/nc
Kyocera Mita America . . 23
www.kyoceramita.com/
Microsoft Visual Studio 11
msdn.microsoft.com/visualstudio
Mobile & Wireless World . . 24/25
www.mwwusa.com
Oracle Corp. . . 4
www.oracle.com
SAP . . 1, 17
www.sap.com
SAS . . 9
www.sas.com
*Regional Select Edition

This index is provided as an additional service. The publisher does not assume any liability for errors or omissions.

Continued from page 1

Bluetooth

tool called Bluewatch from AirDefense Inc. to scan every device on his network and employees' mobile phones for the presence of the wireless technology. Hawkins will then decide which devices should be allowed to run Bluetooth and access the network at Leapfrog, an Atlanta-based vendor of managed network services.

Cracks in Bluetooth's security capabilities first came to light in February, when researchers in the U.K. said they had developed a tool that could exploit a flaw in some phones to connect to other devices without going through the normal pairing process. Once the connection was established, the tool could download data such as address books and personal calendars [QuickLink 44727].

Attack Techniques

The Bluetooth Special Interest Group (SIG), a trade association based in Overland Park, Kan., today plans to address the technology's vulnerability to the "bluesnarfing" attacks and another hacking technique called "bluejacking."

The group said in a statement that Bluetooth users need to "understand the realities of the situation [and] know how to protect themselves." Patches are available for the phones that are at risk of being attacked, said a spokesman for the Bluetooth SIG. He added that the group also plans to detail initiatives it has under way to make Bluetooth more secure.

The spokesman said that only a relatively small number of phones from Nokia Corp. and Sony Ericsson Mobile Communications AB are susceptible to bluesnarfing. Despite the current concerns, he claimed that Bluetooth "is more secure than any other wireless technology" because of the short transmission range of most devices and its 128-bit encryption capabilities. Neither Nokia nor Sony Ericsson returned calls.

Bluetooth security concerns will likely continue to grow as devices that use the technology proliferate, said Chris Kozup, an analyst at Meta Group Inc. Kozup said Bluetooth-equipped mobile phones can be a particularly vexing problem for IT managers because many are bought by individual employees, making them harder to manage than corporate assets such as laptop PCs.

Bluejacking involves sending unsolicited text messages to other Bluetooth users. Karl Feilder, president and CEO of Red-M Ltd., a vendor of wireless security tools in Bucks, England, described bluejacking as "an annoyance" that can be defeated by turning off the phone function on devices, which needs to be on to allow the exchange of such messages.

Few IT managers are even aware of Bluetooth's widespread use, Feilder said. Worldwide shipments of mobile phones and other devices that use the technology exceeded 1 million units per week last year, according to the Bluetooth SIG. He estimated that as many as 2 billion Bluetooth-equipped devices could be in use by next year.

Bluetooth Threats

Bluesnarfing: Exploits a flaw in some phones to bypass the pairing process in which PINs are exchanged and gain access to data on the target device.

Bluejacking: Uses the wireless connection to send text messages to other mobile phones without first going through the pairing process.

Many Bluetooth products are short-range devices that can transmit across distances of only about 30 feet. But Jay Chaudhary, chairman of AirDefense in Alpharetta, Ga., said a large number of laptop PCs include longer-range Bluetooth radios that can work at distances of up to 300 feet. That could make them more vulnerable to attacks, he said.

AirDefense's Bluewatch detection tool costs $295 for use on a laptop PC. Red-M also offers a Bluetooth detection system that's based on radio frequency sensors deployed throughout a company's offices, with costs for an installation running between $50,000 and $250,000, according to Feilder. **46757**

Continued from page 1

E-voting

voter-verifiable paper receipts, the 50 million Americans who will use electronic voting machines this fall will have no way of knowing if their votes were subject to electronic tampering. Moreover, the code base powering the systems is so large and complex that there's no efficient way for election officials to be sure that it's free of malicious code designed to manipulate election results.

Avi Rubin, a professor at the Johns Hopkins University Information Security Institute in Baltimore, said his biggest concern is the threat of individuals who have access to the code base rigging the election. "And it's virtually undetectable," he said.

"The trusted computing base is approximately 50,000 lines of computer code sitting on top of tens of millions of lines of [operating system] code," Rubin said. "It is impossible to secure such a large trusted-computing base."

Rubin recently had 40 Ph.D. candidates design Trojan horse programs to assess the security of the e-voting systems. "I was astounded to see the cleverness and ease with which the malicious code was hidden and how difficult it was to find," he told the commission. "In the short term, meaning November 2004, a voter-verifiable paper ballot is necessary. It's the only way to get around all of the security problems in the machines" and, if necessary, to conduct meaningful recounts.

Identifying Vulnerabilities

Rubin, who has come under fire from IT vendors and their Washington lobbying group, the Information Technology Association of America, recently worked as a polling official to observe the process firsthand.

Although Rubin said that the experience forced him to rethink some of his early concerns about the security of the systems, he added that he came away with new concerns about the risk of manipulation and fraud.

DAN VERTON

Johns Hopkins professor Avi Rubin claims there are significant vulnerabilities in electronic voting systems.

"At the end of the day, the memory cards were taken out of all of the machines and put into one machine . . . and then they were [transmitted via modem] to back-end servers," said Rubin. He also noted that the polling station used a broken cipher for encryption and a key that was hard-wired to all of the machines. That constituted "a single point of vulnerability," he said.

Ted Selker, a professor at MIT and a former IBM fellow, said there are ways to counter such vulnerabilities. But encryption would be too difficult to deploy in time for the November vote, he said. And in some cases, registration databases remain full of errors — a problem that led to the loss of between 1.5 million and 3 million votes during the 2000 election, Selker said.

The IT vendors that make the systems in question sought to discredit Rubin's research by characterizing it as laboratory work that has little relevance to a real-world voting environment. Some also complained that until last year, election officials were more interested in usability improvements than in better security.

"What's been missing from these laboratory-originated critiques has been the real-world experience of the voting booth," said Mark Radke, director of marketing at McKinney, Texas-based Diebold Election Systems, which made the system tested by Rubin and his students. The questions and doubts raised are "theoretical in nature," he said.

Neil McClure, general manager of Hart InterCivic Inc. in Austin, said product changes should be based on risk assessments, not solely on the existence of vulnerabilities. He discounted the threat of electronic tampering, saying it would require a long-term commitment by a motivated attacker.

In any case, both the IT vendors and the researchers agreed that properly securing the existing systems will also be a long-term process.

"For 2004, we have the equipment we have," said Selker. **46750**

CASTING THEIR VOTES

The ITAA last week blasted the comments of e-voting security critic Avi Rubin:

QuickLink 46763

See Dan Verton's photojournal covering the election commission hearing online:

QuickLink a4510
www.computerworld.com

Periodical postage paid at Framingham, Mass., and other mailing offices. Posted under Canadian International Publication agreement #40063800. CANADIAN POSTMASTER: Please return undeliverable copy to PO Box 1632, Windsor, Ontario N9A 7C9 Computerworld (ISSN 0010-4841) is published weekly; except a single combined issue for the last two weeks in December by Computerworld, Inc., 500 Old Connecticut Path, Box 9171, Framingham, Mass. 01701-9171 Copyright 2004 by Computerworld Inc. All rights reserved Computerworld can be purchased on microfilm and microfiche through University Microfilms Inc., 300 N. Zeeb Road, Ann Arbor, Mich. 48106. Computerworld is indexed. Back issues, if available, may be purchased from the circulation department Photocopy rights: permission to photocopy for internal or personal use is granted by Computerworld Inc. for libraries and other users registered with the Copyright Clearance Center (CCC), provided that the base fee of $3 per copy of the article, plus 50 cents per page, is paid directly to Copyright Clearance Center, 27 Congress St., Salem, Mass. 01970 Reprints (minimum 100 copies) and permission to reprint may be purchased from Renee Smith, Computerworld Reprints, c/o Reprint Management Services, Greenfield Corporate Center, 1808 Colonial Village Lane, Lancaster, Pa., 17601, (717) 399-1900, Ext. 172. Fax (717) 399-8900. Web site: www.reprintbuyer.com E-mail: reprints@computerworld.com. Requests for missing issues will be honored only if received within 60 days of issue date. Subscription rates: $5 per copy U.S. - $99.99 per year; Canada - $130 per year; Central & So. America $250 per year; Europe - $295 per year; all other countries - $295 per year. Subscriptions call toll-free (888) 559-7327. POSTMASTER. Send Form 3579 (Change of Address) to Computerworld, PO Box 3500, Northbrook, Ill. 60065-3500.

BPA ABM RED TAG

FRANK HAYES ■ FRANKLY SPEAKING

Sinister Sasser

THINK THE SASSER WORM IS TRIVIAL? Think just because it had near-zero impact on U.S. businesses, it's not something you need to worry about? Think again. True, Sasser infections numbered only in the dozens at places like American Express, Citibank and Lehman Brothers, and the worm was cleaned up quickly. Even in Europe, where banks, a stock exchange and even the offices of the European Commission were reportedly hit, Sasser was more of an annoyance than a crisis — nothing to really worry about.

Start worrying. Worm writers are learning. And they have a plan.

Why do you think there are endless versions of new, seemingly ineffective worms like Netsky and Sasser? They don't do much besides spread themselves. So why 30 versions of Netsky in 11 weeks? Why a dozen Welchia worms in three months? Think: Why would *you* churn out lots of small prototypes very quickly, with only slight differences among them?

That's right — to test them with users and get feedback, to find out which features of each prototype work and which are a waste of time. We do it with a pilot group of users. The worm writers are doing it with the entire Internet.

These prototype worms aren't supposed to wreak havoc. They're just supposed to spread. They're experiments, prototypes with cycle after cycle of tweaking and testing.

Once, the individuals who wrote malware just took their best shot. Now they work in teams, developing their software slowly and carefully, testing one element at a time. Those step-by-step results aren't very dramatic. But once the worm writers put it all together, their worms will be a lot more likely to work.

Feeling a little worried yet?

That slow, steady approach to worm writing has other results, too. Worm writers now know that the timing of a worm launch matters. Sasser hit on Friday evening, just after the security experts went home for what was a three-day weekend in Europe — so it got a much better head start than if it had been released on a Thursday afternoon.

Worm writers have also accustomed us to lots of worms — two or three new variants per day now — and high infection rates. Five years ago, the Chernobyl virus spread to 700,000 computers. Everyone was astounded. Last week, Sasser probably topped a million, and everyone yawned. As worm writers are getting more methodical, effective and — ultimately — threatening, we're paying less attention.

So what *is* their plan? What's all this meticulous worm development leading to?

We don't know. But we can guess. The goal might just be a giant network of spam relays. Or it could be something much worse.

What if all those different worms are turned into empty delivery vehicles? What if a future generation does its overnight mass infection, and then each worm phones home for a payload? That would form a perfect platform for massive denial-of-service attacks. Properly designed, the worms could hide their target until the last minute — because they won't contain the attack payload until the last minute.

Worried now? Good.

That DoS attack, when it comes, might be aimed squarely at you. It might hit a key supplier or service provider. It might just suck up all the bandwidth in your vicinity. You need to be prepared for an attack — or for collateral damage.

If you don't already have a DoS recovery plan, make one now. Then test it. Refine it. Make sure your IT shop can execute it. Prepare for a DoS attack like you would for a fire, flood or any other disaster.

Because even if those worms don't ultimately pose a DoS threat, you're no worse off. You're ready in case someone or something else slams you with a DoS attack.

But if the worms turn on you, the last thing you'll think they are is trivial. **46707**

FRANK HAYES, *Computerworld*'s senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

Wrong, Wrong, Wrong!

This county office moves from dumb terminals to networked PCs so swiftly that there are lots of equipment problems: misadjusted monitors, keyboards with cables that don't reach – you get the idea. It's no big deal, reports a pilot fish there, and employees shift things around for themselves. Then the nontechie manager hears about it. "She gathered us in an auditorium and exhorted us to call the help desk even if all we needed was to move the monitor from one side of a desk to the other," fish says. "Why? Well, obviously because if you move them, they could explode."

SHARK TANK

Flying Blind

Tech pilot fish gets the call when the payroll department's printer jams halfway through printing payroll checks. "When I approached the printer, the payroll clerk jumped in front of me and told me I couldn't look at the checks," fish says. "I asked her how I was supposed to fix the jam if I couldn't get near the printer. She told me I would have to keep my eyes closed."

That Tiny Web

When this contractor pilot fish gets hired as a regular employee, he finally has real health insurance. But he can't find the list of doctors on the insurance provider's Web site, so he asks the HR director. "Have you looked at the purple book on the HR table?" she says. No, I was looking online, says fish. "It's not online," she tells him. "They have to print it. The list of doctors is too long, and it changes too often."

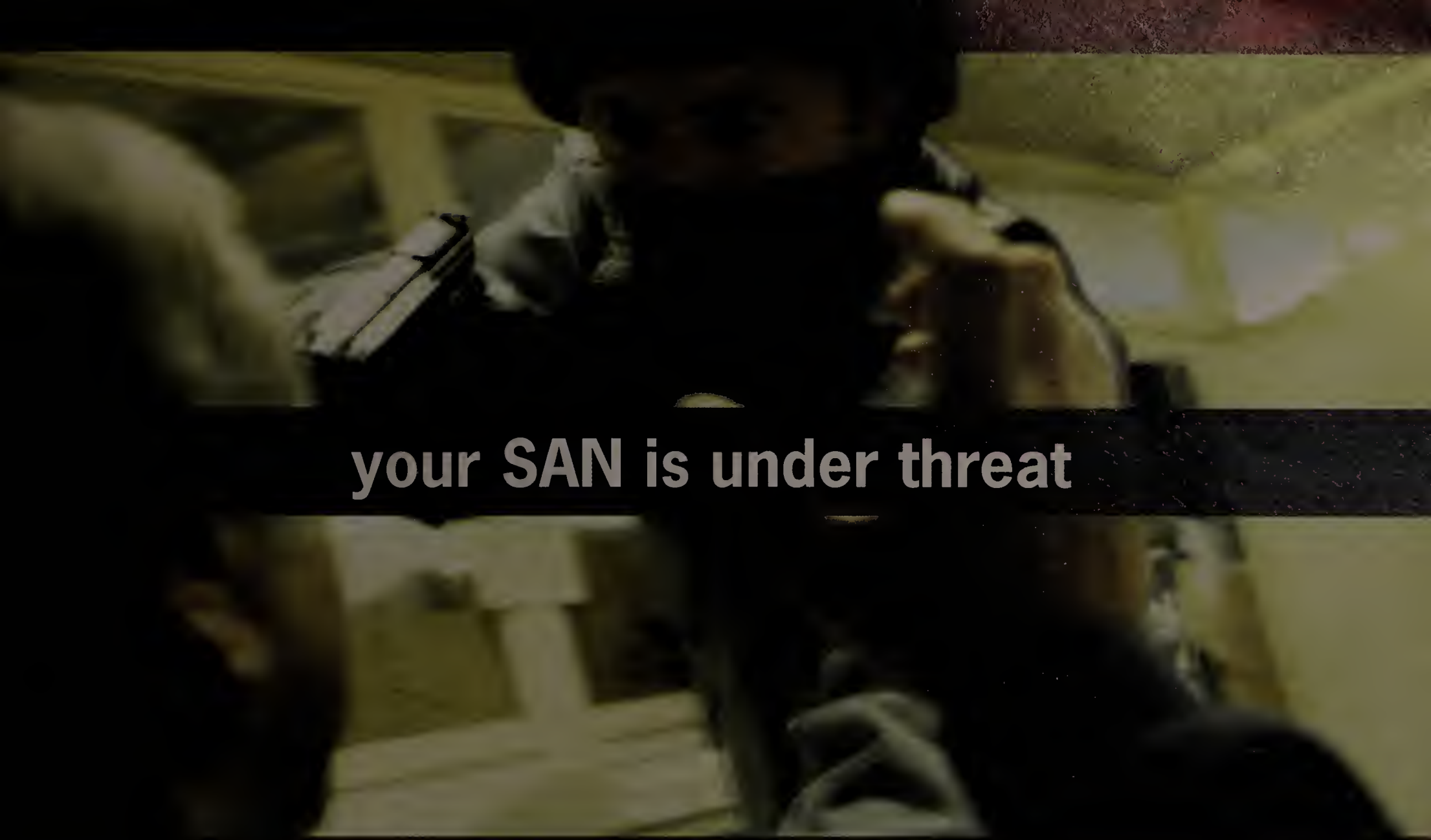
About One Link Short of a Chain

Bank's CIO claims he's big on teamwork, leadership and especially a strong chain of command. So sys admin pilot fish is puzzled to find himself in the CIO's office – without his IT manager boss – hearing the CIO gripe that he doesn't know what fish does all day. "I start to enumerate my many duties," says fish. "But he cuts me off, saying, 'I don't want to know what you're doing!' "

Big Bother

New wireless network at a health clinic works fine for a few days. Then it stops working, and a pilot fish is sent to investigate. He discovers that the wireless access point has been unplugged. Turns out one of the nurses did it. Nursing supervisor tells fish, "The nurses asked me why you set up a staff monitoring device in their area. It isn't any of your business what they were doing, so they unplugged it." Fish explains what the wireless access point is really for, but supervisor is still unmoved: "It had antennas on it, so we just figured we would unplug Big Brother."

NEVER MIND BIG BROTHER, Sharky is watching: **sharky@computerworld.com**. You score a stylish Shark shirt if I tell your true tale of IT life. And check out the daily feed, browse the Sharkives and sign up for Shark Tank home delivery at **computerworld.com/sharks**.



Without SAN monitoring, downtime is stealing from your business.

Reduce your exposure to the risks associated with SAN downtime. Get NetWisdom and Xgig Analyzer, the SAN monitoring and analysis tools that identify catastrophic events before they shut your network down. SAN failure occurs after an accumulation of invisible errors. Finisar's NetWisdom and Xgig Analyzer proactively identify and troubleshoot network errors, reducing business losses, technology costs, and customer service voids.

Research shows that SAN downtime can cost organizations $100,000 per minute, or more.* NetWisdom and Xgig help you avoid these costs by conducting accurate performance tuning and capacity planning.

When data stops moving, so do the dollars. Be part of the solution: monitor your SAN with Finisar network tools and stop degradation, CRC errors and events that can impact your most critical business data and transactions.

View our web seminar, including a customer case study and demo of NetWisdom by visiting www.**finisar.com**/risk

*Source: Fabric Computing: Beyond the N-tier Data Center, RBC Capital Reports Oct 2003

Finisar

Finisar has been speeding up networks and delivering best-of-breed products and testing solutions since 1988. Finisar was the recipient of the 2004 Frost & Sullivan Award for Market Leadership in the fibre channel test equipment market. NASDAQ: FNSR.

www.finisar.com/risk

the Oracle Platform

Database 10*g*
Application Server 10*g*

Common LDAP directory

Unified security model

Common administration

Automated space management

Engineered to work together

ORACLE®

oracle.com/platform
or call 1.800.633.0753

Copyright © 2004, Oracle Corporation. All rights reserved. Oracle is a registered trademark of Oracle Corporation and/or its affiliates.